

Medical Library

THE MEDICAL JOURNAL OF AUSTRALIA

OCT 19 1944

VOL. II.—31ST YEAR.

SYDNEY, SATURDAY, SEPTEMBER 9, 1944.

No. 11.

COMMONWEALTH OF AUSTRALIA.—DEPARTMENT OF HEALTH.

INSULIN

10 c.c. bottle of 200 units (20 units per c.c.)	3/-
Set of 12 x 10 c.c. bottles of 200 units (20 units per c.c.)	34/-
10 c.c. bottle of 400 units (40 units per c.c.)	5/8
Set of 12 x 10 c.c. bottles of 400 units (40 units per c.c.)	64/-
5 c.c. bottle of 300 units (60 units per c.c.)	4/3
Set of 12 x 5 c.c. bottles of 300 units (60 units per c.c.)	48/-

PROTAMINE ZINC INSULIN

Bottle containing 5 c.c., 40 units per c.c.	3/4
Set containing 12 x 5 c.c. bottles, 40 units per c.c.	38/-
Bottle containing 5 c.c., 80 units per c.c.	6/8
Set containing 12 x 5 c.c. bottles, 80 units per c.c.	74/-

PITUITARY (Posterior Lobe) EXTRACT

Obstetrical Strength.

10 International Units per c.c. (oxytocic):	3/4
1 box of 6 ampoules each containing 1 c.c.	3/4
1 box of 6 ampoules each containing 1 c.c.	3/4

Surgical Strength.

20 International Units per c.c. (pressor):	5/-
1 box of 6 ampoules each containing 1 c.c.	5/-
1 box of 6 ampoules each containing 1 c.c.	5/-

Insulin, Protamine Zinc Insulin and Pituitary (Posterior Lobe) Extract, are highly purified products carefully standardized in terms of the appropriate International Units established by the League of Nations Commission on Standardization of biological products.

Supplies may be obtained from the Commonwealth Serum Laboratories, Parkville, N.2, Victoria, and also from the following: Director-General of Health, Canberra, A.C.T.; Senior Commonwealth Medical Officer, Customs House, Circular Quay, Sydney; Medical Officer-in-charge, Health Laboratory, Lismore, N.S.W.; Medical Officer-in-charge, Health Laboratory, Bendigo, Vic.; Senior Commonwealth Medical Officer, C.M.L. Building, 41-47 King William Street, Adelaide; Medical Officer-in-charge, Health Laboratory, Port Pirie, S.A.; Senior Commonwealth Medical Officer, Fourth Floor, G.P.O., Perth; Medical Officer-in-charge, Health Laboratory, Kalgoorlie, W.A.; Senior Commonwealth Medical Officer, Anzac Square, Adelaide Street, Brisbane; Medical Officers-in-charge, Health Laboratories, Toowoomba, Townsville, Cairns, Rockhampton, Qld.; Senior Commonwealth Medical Officer, Commonwealth Health Laboratory, Launceston; Medical Officer-in-charge, Health Laboratory, Hobart, Tas.

COMMONWEALTH SERUM LABORATORIES

PARKVILLE, N.2, VICTORIA, AUSTRALIA

THREE IMPORTANT USES OF

1 Ten drops daily of Adexolin Liquid for the infant ensure normal dental and skeletal development and build up general resistance.

2 Twenty drops of Adexolin Liquid daily during pregnancy safeguards the mother against dental caries, the child against rickets, and both against infection.

3 Up to twenty drops of Adexolin hourly during the initial stages of fever, increase resistance. At the later stages, Adexolin in smaller doses supplies the fat-soluble vitamins lacking in low-fat diet.

ADEXOLIN



★ Each c.c. of Adexolin Liquid contains 12,000 i.u. of vitamin A and 2,000 i.u. of vitamin D.

Available in 14 c.c. phials and 2 oz. bottles.

GLAXO LABORATORIES (AUST.) PTY. LTD.

Melbourne

Sydney

ALL WOOL DRESSING GOWNS

for roomy comfort

Designed for roomy comfort and lasting service, these all-wool Dressing Gowns have self girdles and are obtainable in plain brown with contrasting Collar and Cuffs and plain fawn with brown collar and cuffs.



PRICE 78/5. 15 coupons.

The House of

PEAPES

AT WYNARD STATION, GEORGE STREET, SYDNEY
(OPPOSITE HUNTER STREET)

THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—31st YEAR.

SYDNEY, SATURDAY, SEPTEMBER 9, 1944.

No. 11.

Table of Contents.

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES—	Page.	BRITISH MEDICAL ASSOCIATION NEWS—	Page.
The Bancroft Memorial Lecture—The Role of the Medical Services in Modern Warfare, with a Review of some of the Special Medical Problems of the Present World War, by Victor Hurley	265	Scientific	286
Syphilis in Pregnant Women: A Study Based on the Routine Wassermann and Kahn Tests performed on 28,924 Patients, by T. Dixon Hughes	273	Notice	286
Fainting, Shock and Muscular Activity, by J. Walker Tomb, O.B.E., M.D.	274	PUBLIC HEALTH—	
REPORTS OF CASES—		Commonwealth Parliamentary Joint Committee on Social Security: Interim Report of the Medical Planning Committee	287
Thoracopagus Tribrachius Dipus, by M. H. L. Williams	275	THE ROYAL AUSTRALASIAN COLLEGE OF PHYSICIANS—	
Severance of the Aorta and Pulmonary Artery in a Closed Injury to the Chest, by J. B. Cleland, M.D.	278	Meeting at Melbourne	297
Plasmodium Ovale Malaria: A Report of Two Cases Contracted in New Guinea, by A. V. Jackson	278	NATIONAL EMERGENCY MEASURES—	
REVIEWS—		Allowance of Extra Butter to Patients with Diseases other than Diabetes	297
A Handbook on X-Ray Diagnosis	279	CORRESPONDENCE—	
A Year Book of Diseases of the Eye, Ear, Nose and Throat	280	A Case of Malaria Acquired near Sydney, New South Wales	297
Veneral Diseases: Diagnosis and Treatment	280	Dermatitis due to Sulphonamides	297
Endocrine Disorders	280	Some Observations on Tuberculosis Control	298
LEADING ARTICLES—		NAVAL, MILITARY AND AIR FORCE—	
Medical Etiquette or Manners	281	Appointments	298
CURRENT COMMENT—		POST-GRADUATE WORK—	
Gall-Bladder Disease in Elderly People	282	General Revision Course at Sydney	298
The Causes of Death in Rheumatoid Arthritis	282	OBITUARY—	
Penetrating Wounds of the Chest	283	Thomas Patrick Connolly	298
ABSTRACTS FROM MEDICAL LITERATURE—		James Ferdinand Rudall	299
Pædiatrics	284	Frederick Gordon Robertson	299
Orthopædic Surgery	284	NOMINATIONS AND ELECTIONS	299
		BOOKS RECEIVED	300
		DIARY FOR THE MONTH	300
		MEDICAL APPOINTMENTS: IMPORTANT NOTICE	300
		EDITORIAL NOTICES	300

The Bancroft Memorial Lecture.¹

THE ROLE OF THE MEDICAL SERVICES IN MODERN WARFARE, WITH A REVIEW OF SOME OF THE SPECIAL MEDICAL PROBLEMS OF THE PRESENT WORLD WAR.

By VICTOR HURLEY,

Air Vice-Marshal, Director-General of Medical Services, Royal Australian Air Force.

I FEEL greatly honoured at being asked to deliver this lecture, which is in memory of Dr. Joseph Bancroft, who lived and practised in this city more than half a century ago. Although there can be but few now remaining who knew him during his lifetime, his memory has been most fittingly perpetuated in this lecture. Bancroft was a man of remarkable qualities, for not only was he a leading figure in his profession, but he also established for himself a wider reputation because of his research and investigations in many fields as well as in medicine.

Born at Manchester in 1836, Bancroft graduated in 1859, and was in practice in Nottingham for five years before he came to Brisbane at the age of twenty-eight years, in 1864. During the next thirty years he built up a large practice, and he died in 1894 somewhat suddenly of heart disease at the age of fifty-eight. Despite his active professional life, he also took a leading part in other affairs of the community. He was president of the Queensland Medical Board and the Board of Health, as well as of the Medical Society of Queensland. He was also a member of the old Philosophical Society (the first scientific society in Queensland), and president of the Royal Society which succeeded it. He was for many years visiting physician to the Lady Bowen Hospital, and surgeon to the Brisbane General Hospital. In his obituary notice it was stated that his funeral was attended by all the medical men of

Brisbane, who felt that in him they had lost a kind and thoughtful friend and the example of a devoted seeker after scientific works.

It is for these latter activities that he is chiefly remembered. He was one of the pioneer investigators in tropical diseases and first discovered the adult sexual form of the filaria which is concerned in the disease known as filariasis. It has been named after him—*Filaria bancrofti*. He was also amongst the first to appreciate the important part played by insects in the spread of disease—especially that of many diseases met with in tropical countries—and would have been keenly interested in the problems with which we are dealing at the moment, in view of the large numbers of Australians serving in tropical areas where there are many diseases which are transmitted by insects.

Progress in the scientific field has been achieved by the energetic search of men such as Bancroft into the underlying causes at work in the phenomena of nature which are about us at every turn. There have been many such ornaments of our profession, who have thus contributed to the sum total of human knowledge with resulting benefit to the welfare of mankind. Bancroft's activities ranged over a wide and diverse field. Before he left England as a young man, he had studied methods of preserving fish and fish ova, and had helped to pack the first batch which reached Tasmania alive. In Queensland, he studied the diseases of sugar cane and bananas, bred new varieties of wheat and grapes, cultivated oysters and investigated the medicinal properties of certain Australian herbs and plants.

WAR AND MEDICINE.

In Bancroft's day Australia lived at peace, and our country, which we had inherited without a struggle, prospered and flourished. Wars and rumours of wars in the old world passed us by. This was also the golden age of the British Empire, under whose prestige and power our security was assured, and there was on the horizon no threat to our safety from any covetous aggressor. Since the beginning of this century, however, and within the lifetime of many of us, we have been involved in three wars, each more menacing than the last.

¹ Delivered at Brisbane on June 2, 1944.

I propose to review briefly the effect war has had on the medical arrangements of the community, and also to outline some of the problems involved in organizing the medical services for the Australian forces—Navy, Army and Air Force—to meet the needs of war. Many of these medical problems are common to all three services, but each service has its own special problems in addition. As I shall, however, chiefly discuss those matters which are within my own personal experience, my observations will of necessity refer more particularly to the medical services of the Royal Australian Air Force, with which I have been associated in this war. The inception of these services has been so recent, and the developments in aviation have occurred so rapidly (and still continue) that there has been a special degree of urgency in regard to the numerous medical problems of modern aviation. These problems are still further increased when its highly technical and powerful weapons are used for the purposes of war.

In the South African War of 1899 to 1902 we were not deeply committed, and there were no special Australian medical problems. Some medical officers went from Australia with the contingents which were sent from the various States. There were, however, no organized Australian medical services, and the numbers of our troops and of the medical officers who were involved were not sufficient to affect the normal life of the people of Australia. There were no aeroplanes, no heavy artillery, no trench warfare, and the fighting was carried out by comparatively small bodies of troops operating over wide expanses of country. Of the 230,000 British and Dominion troops engaged at some stage of the war, 7,000 were killed in action or died of wounds, while more than 14,000 died from disease, chiefly typhoid fever and dysentery. Certain medical lessons were learnt in regard to the prevention of these diseases, and they were effectively applied in the war of 1914 to 1918. Further reference to these will be made later.

In the war of 1914 to 1918, however, Australia was fully committed along with the other Dominions, and her effort was a magnificent one. More than 400,000 men enlisted, of whom more than 330,000 embarked from these shores. Our resources of manpower were severely taxed in the concluding stages of the war, but nevertheless, despite the magnitude of our war effort, the work and life of the community in Australia were maintained—under certain difficulties it is true, but these were not comparable with the hardships and sacrifices endured by a nation involved in total war in a fight for its existence. In that grim and protracted struggle more than 60,000 Australians laid down their lives. By their deeds of valour on many battlefields, our troops won imperishable glory and gained for Australia an honoured place amongst the nations. Out of that war an Australian national consciousness was born, and since that time we have (with some occasional lapses) faced our national problems as one united people. It is devoutly to be hoped that there will be a similar outcome of the present war.

At the commencement of the war of 1914 to 1918, we did not, however, set out to provide an Australian medical service complete in all particulars, such as has been required in this war. As the Australian divisions were raised and dispatched overseas, all the necessary medical personnel and field medical units required went with them. In the various theatres of war in which they served, these were included within the organization of the army or forces with which they were operating, and our men were cared for within their general medical arrangements. A large number of other Australian medical units, such as general hospitals, lines of communication hospitals, hospital ships *et cetera*, were sent, and a large number of Australian doctors and nurses were also made available for service in the British forces. It was not until after the Gallipoli campaign that an Australian director of medical services was placed in control of the Australian Imperial Force medical services, and from then on we accepted greater and greater responsibility for our own medical arrangements. Right up to the end of the war, however, we were indebted to the British medical services for a good deal of the medical care of our sick and

wounded. The problems of the Australian medical services in the war of 1914 to 1918 and the manner in which they were dealt with are fully discussed and recorded in the official history, written by Colonel A. Graham Butler, D.S.O., whose name and reputation are as familiar to many of you as they were in the first Australian Imperial Force. This monumental work should be consulted for any authoritative information which is desired on the subject.

The hope that this war, which cost the world at least 10,000,000 lives, was to be the war to end wars, proved an idle dream. After 25 years of uneasy peace we became involved in 1939 in the second World War, in which the issues at stake and the numbers engaged far transcend all previous wars in world history. For the first time, Australia has been engaged in a struggle in which the tide of battle has reached our shores. Australian men and women have been killed on our own soil, and our national existence has been at stake. Every man and woman has been called on to play some part in the national war effort—sacrifices have been required of all, and in these the medical profession has fully shared. Australia has mobilized for war purposes as large a proportion of her comparatively small population as possible, and when the full story can be told the sum total of our effort is one of which all Australians can be proud. More than three-quarters of a million men and 40,000 women have served in the Navy, Army and Air Force, and many thousands are employed in munitions and other essential war jobs.

In order to mobilize effectively the whole resources of a nation for war, much planning and organization are thrown on the medical profession, to meet the needs not only of the forces, but also of the civil population. Fortunately, steps had already been taken before the outbreak of the present war to survey our medical resources, and plans were made to ensure that these would be used to the best advantage in a national emergency. There was only a handful of permanent medical officers in the fighting services when war occurred, and the large number of medical officers required for them had to be obtained from doctors in civil practice. There were, however—chiefly in the militia forces and on the army reserve—a not inconsiderable number of medical officers with experience of the last war. These formed a valuable basis on which the necessary medical services could be (and were) rapidly organized. The size of the forces of each nation engaged in the war is limited in point of numbers only by its capacity to feed, clothe, equip and maintain them in the field. No longer are battles conducted by comparatively small professional armies, which in point of numbers would be regarded today as barely sufficient for one minor theatre of war. The troops on both sides in the Battle of Waterloo, which determined the destiny of Europe for most of the last century, would barely equal one army today when armies are reckoned in millions.

Quite apart from the greatly increased numbers of men to be cared for in the forces in this war, the responsibilities of the medical services in modern warfare are far greater than in the past. Avoidable wastage of valuable manpower must be ensured by the selection and training for the various special duties of those who are best qualified for them. The increased range and complexity of modern weapons of war require men with the necessary physical and technical qualifications and training to use them effectively. An army of workers in the factories is also required to produce them. The increased destructiveness of these weapons also makes added demands on the capacity of the individual to withstand the stresses and strains to which he is subjected.

Selection of the Material to be Trained.

Each service arranges for a complete medical examination of recruits on entry, and this includes an X-ray examination of the chest. It is of some interest to record that the Australian Army Medical Service was the first service to institute this valuable procedure as a part of the routine medical examination, and soon afterwards, the Royal Australian Air Force and Royal Australian Navy also adopted it. It has since been followed in other

countries. A similar X-ray examination is also made on the discharge of any man from the Australian services. The benefits of this procedure have been amply demonstrated by the accumulated experience of the services, and it might well be extended with advantage to include the whole community. A word of warning should, however, be given that before any such step is taken, plans would need to be completed so as to be able to accommodate and treat the sufferers from latent tuberculosis who would thereby be detected.

In the Royal Australian Air Force, the work of examining recruits is centralized in each capital city, at recruiting centres, where the necessary staffs and medical equipment and X-ray facilities are provided. Experienced medical officers are employed, and the services of specialists are readily available to give advice in doubtful cases. There are well over 100 separate trades or musters in the Air Force, and for many of these, higher standards than the general basic standard are required—for example, better vision and hearing, *et cetera*. Education and technical officers are also responsible for the assessment of the qualifications and capacity to absorb the training for particular kinds of work—for example, for the work of fitters, wireless mechanics, instrument repairers *et cetera*—as well, of course, as the special standards necessary for air crew. Many of the courses of training take several months to complete. It has been estimated that the cost of training a pilot is more than £3,000, and not all who are accepted for training—even after careful selection—succeed in "making the grade". It is obviously a matter of much importance to eliminate unprofitable material at the beginning or as soon afterwards as possible, rather than after months of wasteful effort, both by the trainee and by his instructors. The failure may be due to one or more of many well-recognized causes, some of which are difficult to assess in advance, and it may be of interest if I now briefly refer to some of these.

Some Medical Problems of Flying.

Man's conquest of the air and his ability to fly heavier-than-air machines is one of his most recent achievements. He has not been specially equipped by nature to do this as birds are for flying or as fish are for their special environment.

Aircraft were first employed in warfare in the war of 1914 to 1918, and since then they have been developed at an astonishing rate. Every warring nation strives its utmost to produce aeroplanes in larger and larger numbers and of higher and higher performance, in attempting to gain the air superiority which is vital for success.

The aircraft flown in the war of 1914 to 1918 were capable of the then astonishing speed of 120 miles an hour—a speed which is now regarded as barely reasonable for an elementary training machine. Speeds of 250 to 350 miles an hour and upwards are now an everyday requirement, and speeds are still increasing. Mount Everest, of 29,000 feet, still defies man's efforts to reach its summit on foot, yet the present-day fighter pilot has now to be able to fly his aircraft at these high speeds and engage in combat at heights up to 35,000 feet, and to go on doing these things. Similar capacity for continued and efficient effort is also demanded of the crews of other aircraft. Many technical and medical problems have had to be solved in order to enable even highly fit personnel to live and be efficient under such conditions. Two of the chief of these have been the provision of equipment for the continued supply of oxygen and for protection from cold. The physiological processes and needs of the human body are much the same now as they have been since the beginning of time; but the stresses and strains to which the body is subjected in war have tremendously increased. Actually, in peace time, with all the amenities and comforts of modern civilization, we lead softer and more sheltered lives than our fathers and forefathers—we have not been so inured to physical hardships; yet in war, the fighting men of all services have to be capable of standing up to physical hardships and stresses as never before. There

are, however, limits to the body's unaided capacity, and beyond this limit effective medical and technical assistance has to be provided. The conditions of diminished oxygen, or anoxia as it is called, and the extreme cold met with at high altitudes, can be reproduced on the ground by the use of specially constructed steel chambers, in which air crew are tested and also trained in the use of their oxygen and other special equipment. One curious early feature of anoxia is that the individual whose performance is thereby affected is usually quite unaware of the fact. Its existence can be readily demonstrated by his failure to do simple sums or write legibly from dictation. On return to normal oxygen conditions and normal performance, he will stoutly deny that he has been affected in any way, until he is confronted with the evidence of his mistakes in his own writing. The condition is especially dangerous because of this insidious onset and the absence of recognizable early warning symptoms. Several of these chambers are in use by the Royal Australian Air Force, and as with so many other essential things which are urgently needed in war, they were with complete success designed and built for the first time in Australia by Australian engineers and workers. Lectures and practical instruction in the chambers are thus given on the ground, so that the men are completely familiar with their equipment and its proper use before they need to use it in flight.

"Bends."

All persons do not react in the same way to the conditions of high altitude. Under normal conditions the constituents of the air breathed into the lungs are taken up by the blood and distributed by the circulation throughout the body and so to all the tissues. If the pressure is increased, more of the air or gases is taken up, to be released as the pressure is diminished. Under conditions of diminished pressure, such as obtains at high altitudes, the gases escape from the small blood vessels into the tissues themselves, where they may collect and give rise to troublesome symptoms. One of these is the condition known as "bends"—a term applied to the acute pain which may occur in the muscles, especially around the larger joints, to such a degree as to be incapacitating. The condition of "caisson disease", met with in deep-sea divers, has also long been known; in this condition the tiny gas bubbles escape into the spinal cord if the increased pressure at great depths is reduced too rapidly. The remedy for divers is to recompress them and then decompress them more slowly. "Bends" are more likely to occur in some persons than in others, and much valuable medical research has been done in regard to their prevention and treatment. Air crew who are specially susceptible should obviously not be employed at high altitudes.

Aero-Otitis Media or Otitic Barotrauma.

The sense of hearing is dependent on the delicate tympanic membrane in the ear; sound waves impinge on it, and are then transmitted through a chain of intercommunicating small bones to the nerve of hearing and so to the brain. The outer aspect of this membrane is in contact with the external air, and its inner aspect with the Eustachian tube, which opens into the pharynx behind the tonsils. Under normal conditions the atmospheric pressure on either side of this membrane is the same. At high altitudes the lowered atmospheric pressure should adjust itself so as still to be the same on either side of the membrane. If there is any blockage in the Eustachian tube, the ready equalization of the atmospheric pressure on either side of the tympanic membrane is interfered with, and a relatively increased pressure of air may develop and cause acute pain in the ear. This is especially likely to occur if there is any swelling of its delicate lining, as in catarrhal infections of the nose and throat, especially in conditions like influenza or the common cold. For this reason it is especially necessary to ensure that potential air crew members are free of nose or throat infections or obstructions, and at the medical examinations at recruiting centres special attention is directed to the nose and throat. In the low-pressure chamber,

where the rate of ascent and descent are under complete control, these factors can be readily determined, and as in the case of "bends", if acute pain develops in the ear with too rapid descent, the condition can be quickly relieved by taking the trainee up again to a higher altitude. For these reasons pilots suffering from colds should be "grounded" and not permitted to fly.

"Black-Out."

Pilots of aircraft travelling at high speed and performing inside turns are liable to the condition known as "black-out". It is a transient condition lasting for a few seconds and is due to the action of centrifugal force on the circulation of the blood. A preliminary blurring of vision or "grey-out" precedes "black-out", which in turn may pass into loss of consciousness. Under similar conditions, but with an "outside" turn, "red-out" occurs. The disadvantages and danger to the fighter pilot in combat under these conditions are apparent, and much promising work has been done in Australia and in other countries in endeavours to devise means of protecting the pilot.

Night Vision.

Many military and air operations are carried out at night, and certain visual problems are involved. We are all familiar with the fact that when we step out into the dark from a well-lighted room a considerable time elapses before the eyes become adapted so as to enable objects to be seen with any distinctness. The night fighter pilot who sees the enemy even a split second before he is himself seen has a decided advantage. The crews of night bombers must also be enabled to do their work effectively at night, despite the added difficulties due to the dazzling glare of searchlights and flares. There is a certain amount of variation between individuals as regards both their capacity for night vision and their capacity for adapting themselves to the dark. The Red Indian of our boyhood and the Australian aboriginal are supposed, on somewhat insecure evidence, to have special qualifications in this regard. Cats and some other animals see better than we do. Various methods have been devised for testing and recording the capacity for night vision as well as to determine the most effective means of lighting cockpits, instrument panels, maps *et cetera*. Courses of training in night vision are also given to air crews. This is also an important problem in the case of motor transport drivers, as well as for the crews of ships, tanks, and armoured fighting vehicles. Another interesting fact in connexion with night vision is that an adequate amount of vitamin A is required in the diet to meet the needs of the pigment cells in the retina of the eye on which capacity for night vision depends. Many vegetables and fruits contain this vitamin, and carrots have enjoyed a special reputation in this regard. A sufficient amount of this vitamin is present in the standard army ration, and if for any reason the necessary amount is not available, the vitamin is supplied in the form of tablets. If the minimum necessary amount of vitamin A is present, no increase in night vision capacity results from a still further increase in the vitamin intake, so that the large amount of carrots once advised for budding pilots is now known to be of no use.

Poor Landings.

Many factors are involved in acquiring that proficiency of technique by which a skilful pilot makes his landings with smoothness and absolute precision. One of these is his ability to judge exactly the relationship of his aircraft to the ground. Added difficulties are encountered under conditions of poor visibility and in featureless country, such as sandy desert, owing to the absence of contrast objects on which the height from the ground and the correct approach for the landing are judged. Good "depth perception" and stereoscopic vision are required. There is much variation in the capacity of different individuals in these regards, and by orthoptic training this capacity can be increased in some cases. A good deal of this training has been carried out in the Air Force. There are still, however, many debatable aspects of these problems on which investigations are still being carried out.

Noise.

Anyone who has been in or near a powerful aircraft with the engines running will appreciate the fact that the engines and the propellers create such a noise that conversation is difficult even by shouting. In passenger aircraft this is largely dealt with by sound-proofing and other devices. In service aircraft, information and instructions have to be transmitted accurately during flight—in training schools, between instructor and pupil and in operational flights between the members of the crew. To achieve this, microphones, laryngophones and other special items of equipment have been developed, and continued improvements have been made in their efficiency as a result of medical and technical research. Similar problems also occur with the crews of tanks and armoured fighting vehicles, and much valuable research has been done in Australia on this subject, as well as on methods of protection of the ears from the effects of noise and blast of modern artillery.

Air-Sickness.

Some people are unfortunate enough to suffer from sickness when subjected to the unaccustomed movements encountered in sea or air travel. This sickness may be of all grades of severity, from merely a mild and tolerable inconvenience to a condition of complete incapacity and utter misery. A great deal of investigation has been carried out on this subject, which presents many complex and baffling problems. One undoubted factor is the disturbance set up in the semi-circular canals, which are concerned with balancing functions and with the appreciation of the position of the body in relation to its surroundings. It is also evident that in many cases psychological factors are involved which are difficult of assessment. The importance of the problem is apparent when one considers the large numbers of personnel who are conveyed by sea or by air, in ships, in landing barges or in aeroplanes, and also paratroops, and who need to be "fighting fit" to engage the enemy as soon as they reach firm earth again. Investigation has largely proceeded along the lines of devising means by which those who are specially susceptible are eliminated as early as possible in their training, and also by the use of various drugs. The number of drugs which have been recommended as remedies against sea or air sickness is legion, and each person usually pins his faith to some particular one which he passes on to his friends, who often enough are disappointed when they fail to obtain the same benefit. However, we have acquired a good deal more knowledge on this subject in recent years and some of the remedies and methods of treatment which are now available are more reliable in their action. The problem, however, is by no means completely solved.

Aviation Medical Research.

In all countries, continued medical research is being undertaken into aviation medical problems, and at a greatly accelerated rate under the stimulus of war needs. Australian workers have made valuable contributions in this field, but much more remains to be done. The universities and research institutes and organizations in Australia have given every assistance to the services in providing facilities as well as the assistance of their scientific staffs and trained workers. Medical officers of the services have also carried out much work on these subjects. There has been a continued exchange of information between Australia and other allied countries on the results of research work, and visits have been made by specialist officers from Australia to gain first-hand knowledge and to discuss problems on the spot. It is of the utmost importance that we should keep abreast of the developments of modern aviation, and Australia, more than most countries, has a special interest in the matter. We need the best, both in aircraft and in the men to fly them, and ample provision for technical and medical research should be included in any plans for the future production and operation of modern aircraft in this country. There is an ample field for work in cooperation by universities and research organizations, as well as by the services themselves.

The Health and Fitness of the Troops.

I turn now to another part of the responsibility of the medical services in war—the safeguarding and maintenance of the health and fitness of the troops. More wars have been lost as a result of wastage of armies from disease and hardships than by death from wounds in battle. Frederick the Great summed up the position as follows:

Where the hygiene of an army is judiciously regulated, the soldier may be kept in health and vigour; but let an ignorant general encamp on a marsh, let filth stagnate, fatigue excessively the men, crowd them into low damp rooms and, despite drugs, they will fall as unripe and blasted fruit, not by the sword but by the fever.

Reference has already been made to the experience of the South African War, in which twice as many men died from disease as from wounds. In the war of 1914 to 1918, the wastage from disease during certain stages of the campaign—for example, at Gallipoli, Salonika and in Palestine—was similarly greater than that from battle casualties. In this war, especially in areas such as Burma and the south-west Pacific, endemic and tropical diseases exist to a high degree amongst the native population—the climatic and other conditions are quite different from those to which our men have been accustomed, and it is only by the utmost vigilance and care that the health of the troops can be safeguarded. Remarkable results have been achieved, in that soon after the occupation of many of the areas in the south-west Pacific where disease has been prevalent, the sickness rate has been rapidly reduced to a figure no greater than that met with in camps and schools of training in Australia. Areas which have previously been occupied by the enemy are often fouled and may be particularly dangerous because of disease and insanitary conditions amongst his ranks. It is known that the enemy has suffered heavily from disease in some of these areas, and to a much greater extent than ourselves.

In no other field of medicine is it more true that prevention is better than cure. The medical services have specialist officers to advise them on these matters—specialists in tropical diseases and hygiene, malarialogists, entomologists, pathologists and bacteriologists. Some of these had worked in these tropical areas before the war. Every commander in the field has an experienced medical officer with the necessary staff responsible for giving advice on these matters, and arrangements exist for coordination and cooperation between the Australian and other services.

Medical Training Unit.

In order to achieve success by preventive and hygiene measures, it is necessary to provide for trained medical and other personnel to give advice and assistance; but it is even more important to obtain the full cooperation of the officers and men of the services as a whole in the carrying out of the measures necessary for their own personal protection.

Medical officers and other medical and nursing personnel, on their entry into the service, are put through courses of training at a medical training unit, in which special attention is directed to field hygiene, sanitation, tropical diseases and associated medical problems. From time to time courses of instruction for selected medical personnel are also arranged at the School of Public Health and Tropical Medicine at the University of Sydney.

Hygiene and Malaria Control Units.

Hygiene units and malaria control units have also been organized, and their personnel receive appropriate instruction and training. These are amongst the first units to be dispatched to new areas of operations.

The first job of the hygiene and malaria control units is to make surveys of the area—camp sites, water supplies, breeding grounds for mosquitoes and other insect vectors of diseases *et cetera*. The necessary steps are then taken to make the areas occupied as safe as possible, and in this work the units rely on the assistance of engineers—works units and other field units. Some of the tasks undertaken would be regarded as major undertakings on the mainland. In one area, for example, more than 600 acres of swamp were drained, insect breeding grounds

were eliminated and the area was made possible for camp sites. A heavy rainfall, leaving pools as breeding places, makes the work very difficult—depressions, truck marks and ruts have to be filled in, empty tins dealt with, and larger and casual collections of water regularly sprayed with oil. Small fish (gambusia) are often introduced into other pools, and they eat the mosquito larvae. The natives, who form the chief reservoir of infection, are housed in separate camps at some distance from our own.

Malaria.—The mosquito is an essential link in the transmission of malaria, so that preventive measures consist in destroying the mosquito and its breeding grounds and in the protection of individuals from being bitten. The part played by the mosquito in the transmission of disease has been comprehensively discussed by Group Captain S. F. McDonald in the Sir Richard Stawell Oration, which he delivered recently in Melbourne. It is the female of the anopheline species which does the biting and so transmits the disease, and it does this usually between sunset and sunrise. During the day the mosquitoes are to be found in shady places, so that men working during the day—especially in bright sunlight—are not so likely to be bitten. The clothing worn should leave as little skin uncovered as possible, and therefore long-sleeved shirts and trousers with garters are advised, especially after sundown. All personnel also sleep under mosquito nets. Various oils and other substances are also used to smear over exposed skin to keep mosquitoes off; oil of citronella has had some repute in this regard, but is not nearly so effective as other substances now used. A daily tablet of one or other of the anti-malarial drugs is also taken. Quinine has long been known to be effective in the treatment of malaria, and also as a prophylactic, or more properly, as a suppressant. In later years it has largely been effectively replaced by "Atebrin" and other drugs, which are being manufactured in sufficient quantity to meet all requirements. Most of the world's previous sources of quinine are now controlled by the enemy. The results of treatment of patients suffering from malaria have been remarkably good in all the Australian services, the mortality rate being less than one per thousand. The rapid air transport of large numbers of men over a long distance, and the possibility that mosquitoes may accompany them in the aircraft, have introduced an additional problem against which appropriate protective measures have been introduced.

Scrub Typhus.—Scrub typhus is not nearly so frequent as malaria, and our knowledge of all the factors concerned in the transmission of the disease has not as yet been so completely worked out as in the case of malaria. Also, there is no specific drug which can be consistently relied on, as is the case with quinine and "Atebrin" in malaria. There are several varieties of the disease in different parts of the world, and various insects act as vectors of infection. Serbia, Russia and other parts of Europe were ravaged by epidemics of typhus during and after the last war. In this variety, the louse is one of the links in the chain of transmission of the disease. Extreme privation and under-nutrition of large communities are also usual concomitants of the variety of typhus met with in Europe. These conditions again exist in many of the countries which have been devastated by the present war. The menace of typhus has already raised its head more than once, and it is highly probable that major epidemics will occur again in these countries. The scrub typhus met with in New Guinea and the south-west Pacific is quite different, and one variety had been described by Australian workers before the war in connexion with small isolated outbreaks of no great severity in certain tropical areas in Queensland. In the Australian and New Guinea variety of typhus, one of the vectors is a small mite found in damp grass and scrub usually close to the ground. Somewhat similar preventive and protective measures with appropriate additions are employed as in the case of malaria. Unwarranted apprehension in regard to the disease seems to exist, which is not justified, as the incidence of the disease has not been great and the mortality rate has not been high. The period of illness and convalescence, however, are usually prolonged over several weeks.

Dysentery and Intestinal Infections.—Dysentery and intestinal infections are almost entirely conveyed through food or water, and flies are the most important factor in transmission. Many different organisms may thus be transmitted, and may cause bowel infections of various types and severity. The most important factor is to prevent contamination of food and to ensure the purity of water supplies. In kitchens, cookhouses and places where food is prepared, stored or eaten, proper arrangements must be made for its safety, and particular care must be taken to prevent the access of flies. Fly-proofing of such places and also of latrines is necessary, because infected persons pass the organisms in their faeces. Separate latrines for those suffering from bowel infections should be provided whenever possible. All possible breeding grounds for flies should be eliminated, and this involves the proper disposal of food waste and scraps, scrapings from plates *et cetera*; they should be either burnt or deeply buried and treated with insecticides. Greasy water from kitchens must not foul the ground. The pupa of the fly can penetrate several feet below the surface of the soil, so mere surface disposal or covering is not sufficient. The occurrence of only a few cases of diarrhoea necessitates immediate and energetic action by the medical officer and the hygiene personnel until the outbreak is arrested. Another factor requiring special watchfulness is that some individuals may act as carriers for some time after recovery by continuing to pass the organisms in their faeces. Such persons should obviously be excluded from any possible contact with food, and if the condition proves resistant to treatment, should be evacuated from the unit. Fortunately, we are now in possession of a drug which has revolutionized the treatment of dysentery and greatly simplified its control.

Vaccinations and Inoculations.

Varying degrees of protection against certain diseases can be given by means of vaccination or inoculation. Members of the services are vaccinated against smallpox and inoculated against tetanus, typhoid fever and paratyphoid fever. As a result, these diseases are no longer serious problems as they have been in the past—as, for example, typhoid fever was in the South African War. Some protection can also be given against other diseases, such as yellow fever, cholera and plague; but under present conditions it has not so far been necessary in Australia to introduce protective measures against these, as has been done in some other services elsewhere.

Sulphonamide Drugs.

Reference has so far chiefly been made to some of the diseases most frequently met with in tropical areas. On the mainland, however, and also in civil life, great advances have been made in the treatment of certain other diseases.

In the last war, for example, cerebro-spinal meningitis was prevalent in many camps throughout Australia. Some camps were isolated and others were temporarily closed. It seems that the collection together of large numbers of persons living and working closely together is one of the factors predisposing to outbreaks of the disease. In this war, isolated outbreaks have occurred—not in large numbers as before—and also during the last few years there have been occasional sharp increases from time to time in the number of cases amongst the civil population. Until the introduction of the sulphonamide drugs in the treatment of this disease, the mortality rate was high—up to 80%—and some of those who recovered were left with various disabilities. Under sulphonamide treatment, the whole picture has dramatically changed; up to 90% of patients who contract meningitis now recover, and the number of those with any residual disability is remarkably small. Greatly improved results have also been obtained in the treatment of other diseases and infections—for example, pneumonia, dysentery, streptococcal infections of various kinds including wound infections, gonorrhoea *et cetera*. These drugs are freely available throughout the services to all medical officers.

Penicillin.

One of the latest and most remarkable advances in medical treatment has been the introduction of penicillin in the treatment of many kinds of infection. Its discovery and subsequent use in the treatment of disease provide one of the most romantic and intriguing stories in medical history. Several years ago Dr. Fleming, a London bacteriologist, noted in his laboratory that a most ubiquitous and tiresome mould occasionally made its appearance on his culture plates. All laboratory workers have had the same experience of occasional contamination of their carefully tended cultures. Fleming noted that the tiny colonies of disease-producing organisms grown on the plates did not like this interloper (*Penicillium notatum*), because they failed to flourish in its neighbourhood. It was not realized at the time that this observation had any practical application in the treatment of disease. It was left for Professor Florey, of Oxford, a South Australian Rhodes Scholar in his younger days, and his wife, also a doctor, to establish the fact that a drug, which he called penicillin, could be extracted from the growths of the mould, and that it had a remarkable therapeutic value. By a series of simply conceived but conclusive experiments and observations, he firmly established the fact that in penicillin a most powerful weapon had been placed in our hands, in that it succeeded in the treatment of many infections in which other methods failed. Another remarkable property of penicillin is that, unlike many other potent remedies, it seems that even in large doses it is well tolerated by the body. The dosage can therefore be greatly increased without the production of dangerous or toxic results. The process of manufacture is long and tedious, and enormous amounts of the mould are required to obtain a small amount of penicillin. As is usual with a new remedy, the production is being steadily simplified and the cost thereby lessened. The Commonwealth Department of Health quickly realized the importance of this discovery, and it has made arrangements for manufacturing penicillin in Australia. Larger supplies are rapidly becoming available for general use. Sufficient cases of illness and wound infection have already been treated with penicillin in this theatre of operations to confirm the good results obtained by British and American workers. The discovery of another closely allied substance, called gramicidin, has recently been announced, and further active investigations are proceeding.

Some Advances in Surgical Treatment.

Advances have also been made in surgical treatment, not only by the use of new methods, but also by extension of the organization of the medical services so as to make skilled surgical treatment more quickly and more readily available.

The use of the various sulphonamide drugs has reduced the incidence of infection and the mortality rates in cases of severe wounds. Penicillin promises to carry this work still further.

Blood Transfusion.

The life-saving procedure of blood transfusion, which was first introduced during the last war, has been greatly extended—blood, blood serum and blood plasma are now readily available right up to the front line. The services are greatly indebted to the excellent organization set up by the Australian Red Cross Society for the large-scale collection of blood and production of serum in various centres in Australia. By means of special storage arrangements, by the establishment of blood banks, by the use of ice chests, and by air transport arrangements, blood is kept in perfect condition and rapidly transported to the forward areas. Many thousands of transfusions have been given in every theatre of war. Blood is also obtained in the forward areas, from individuals on the spot, and the procedure is greatly facilitated by the fact that every member of the services has his blood group determined on entry, and stamped on his identity disk. Dried blood serum, put up in sealed ampoules, has the great advantage that it can be kept more or less indefinitely. It is readily available, together with a compactly packed outfit for giving it at all forward units.

Burns.

The increased use of petrol and internal combustion engines in aircraft, tanks and motor vehicles has led to a great increase in the number of cases of burns in this war, and the burns are often of great severity. Many additions to and some improvements in our methods of treatment have been made, in endeavours to reduce the mortality rate, to lessen infection and to minimize scarring and disfigurement. Blood serum and plasma have been found of special value in the treatment of the severe shock often present in these cases. There has been a swing away from the tannic acid and other coagulant applications in favour of saline and other similar solutions applied in the form of wet packs and by means of baths.

Shock.

In the treatment of shock, greater use has been made of blood and blood derivatives right up to the forward areas. Vigorous heating measures, such as the use of electric light cradles and hot bottles, have long been regarded as a necessary part of the treatment of severe shock, one of the manifestations of which is a cold, clammy skin. When the skin is warmed, however, dilatation of the capillaries occurs, and it has been estimated that the increased amount of blood thus diverted to the skin capillaries may be as much as half a litre. It would, therefore, seem to be wrong to divert to the skin the blood urgently needed for the vital organs, especially when it is remembered that there is a diminution of the volume of the circulating blood in cases of shock which we endeavour to restore by blood transfusion or by the transfusion of plasma or serum. Recent experimental work on animals confirms the view, which many had held on clinical grounds, that overheating of the patient suffering from severe shock is likely to do more harm than good.

The question has also been raised whether limbs in which the blood supply has been seriously diminished, as in wounds of the larger blood vessels, should be kept warmed, as has hitherto been the practice. The object of the warming was mainly to facilitate the development of the collateral circulation. In the tissues of a warmed limb, however, the metabolic processes are more active, and the tissue cells require greater supplies to be brought to them by way of the circulation. Also, in warmed tissues, infections more readily flourish. It appears, therefore, that if the circulation is precarious, the vitality of such limbs and the prospects of their ultimate survival are best maintained by keeping them well cooled by the use of ice bags *et cetera*.

Treatment of Wounds.

The general principles of the treatment of wounds—the necessity of wound excision, the dangers of closure, and the need for effective immobilization, especially during transport—have been found to be applicable in this war as in the last. In accordance with the work of Trueta and others, splinting by plaster of Paris has been used more extensively; but the dangers of encircling non-padded casts have to be continually borne in mind, and the necessary precautions must be taken to avoid impairment of the blood supply. This is especially to be guarded against in cases in which the fascial envelope of the limb has not been freely opened. The Thomas splint has come into its own again as the most effective means of dealing with fractures of the lower limb for those who know how to use it.

From the information now available both here and in other theatres of war, it seems that some modifications of wound treatment are possible with the use of penicillin. It should, however, be emphasized that fundamental surgical principles still hold, and that the necessity for adequate surgical treatment as a first step still remains. After excision of the simpler wounds penicillin in powdered form may be applied to the wound surfaces, and suturing may be carried out if this can be done without tension. In the case of deeper and more extensive wounds, small rubber tubes are inserted in such a way that penicillin solution introduced through them later at regular intervals can reach all parts of the wounds.

Penicillin may also be required in the form of parenteral injections.

Compound fractures may be similarly treated; but it is essential that any such casualties must be retained under the care of the operating surgeon until the dangers of infection are over.

Plastic Surgery.

Early in the war, the Australian Army Medical Services, with commendable foresight, sent some Australian surgeons overseas to learn the latest methods in plastic and reconstructive surgery, which is frequently required to deal with the scarring and deformity which often result from severe wounds and burns. In the last war, this special branch of surgery was pioneered by Sir Harold Gillies at a special hospital which was set up in England for the purpose, and to which an Australian unit was attached. Further developments have occurred since then, and since the return of the surgeons who gained first-hand knowledge of the work being done overseas, they have organized special plastic surgery units in the larger base hospitals in Australia, where excellent work is being done in still further developing this branch of surgery.

New Antiseptics.

Continued search is always in progress to find more effective antiseptics, the ideal being one which will kill or strongly inhibit the growth of pathogenic organisms in wounds and at the same time cause the least amount of damage to the living tissues. It seems that in the di-aminocresidine group we have chemical antiseptics which are more effective in combating certain wound infections than any other previously used. There are many other closely related chemicals in this group, and active investigations are still continuing.

Hospital Service.

Another prime responsibility of the medical services is to provide a continuous service for the sick and wounded all the way from the front line units to the large base hospitals on the mainland. The larger base hospitals, of which there is one chief one in each State, can accommodate 2,000 patients or more, and they are provided with all necessary modern equipment and have specialists available on their staffs. Included in the organization are adequate transport arrangements by sea, land and air, whereby the sick and wounded can be readily evacuated along the lines of communication. The knowledge that skilled medical treatment is always available has a great bearing on the morale of the troops. Medical organization also has always to conform to the tactical or strategical requirements, and it is of paramount importance to the commanders in the field that the area of operations is kept clear of casualties.

In the south-west Pacific area large-scale amphibious operations have been undertaken, and the medical arrangements for these have required special organization. Large numbers of troops have been moved into enemy occupied areas by landing barges and by aircraft, as in the occupations of Cape Gloucester, the Admiralty Islands, Hollandia, and in the paratroop landings in the Markham Valley. "Hops" up to hundreds of miles have been accomplished in places where no road or other land-borne facilities exist. To meet these conditions small mobile field hospitals have been developed, whose personnel and equipment are completely transportable by air. These hospitals can be set up and in working order within two or three hours of their arrival. They have an X-ray unit, a laboratory and an operating theatre, and can handle any medical or surgical casualties met with. Supplies of blood serum and transfusion sets are provided, as well as an adequate range of surgical instruments and medical supplies. These field hospitals can accommodate 50 patients, and in an emergency can be expanded to accommodate 100. Further back along the lines of communication is located a larger type of field hospital for 100 beds, capable in an emergency of taking 200. Such hospitals have a larger staff, and nurses are also provided.

Air Ambulances and Air Transport.

Air transport has been used on a large scale in the operations of this war for transporting sick and wounded. Many thousands of cases have been moved by this means in the south-west Pacific area, in the Middle East, and also by the German and the Russian armies. At the beginning of the war of 1914 to 1918, the Australian field ambulances were equipped with horse-drawn vehicles, and during that war motor ambulances largely replaced them. In New Guinea and in the islands beyond, motor ambulances can be used only for local transport in and around the main bases, and then only after roads have been made. The ubiquitous "jeep" with special stretcher attachments is used in places to which a four-wheel drive ambulance cannot penetrate. The long "carries", however, must be made mostly by air and sometimes by sea.

The first air ambulance unit used in the Middle East campaign in this war was a Royal Australian Air Force unit, which was fitted up in Australia and flown to Egypt in 1940. It transported several thousand casualties in Libya and Tunisia, and after the return of the Australian Imperial Force to Australia it continued its work with the Eighth Army in Sicily and Italy. Other Royal Australian Air Force air ambulances have also been operating in Australia and New Guinea. These aircraft, which fly under the Red Cross, are used for purely medical purposes and usually for the shorter journeys. When large numbers of casualties have to be moved long distances, chief use is made of large transport planes on their return journeys from the forward areas. Many of these have been equipped with stretchers and fittings which can be quickly set up, and when these are not in use the fittings are folded out of the way. These aircraft carry medical equipment, and medical and nursing personnel are provided to care for patients during flight. Oxygen for use at high altitudes or in special cases is also carried. A Royal Australian Air Force medical air evacuation unit with medical officers, nurses and orderlies has been trained for this work and has been organized on similar lines to corresponding American units. Under these arrangements, casualties can be "emplaned" in New Guinea in the morning and can be comfortably settled in their beds in hospitals in Australia on the same afternoon.

Improvement in Results of Treatment.

The general result obtained by the use of these and other new procedures has been to reduce the average mortality rate in cases of wounds in this war by about 50%, as compared with the last war. One factor is the use made of air transport in this war. Sick and wounded men can thus be transported quickly and comfortably to large hospitals, where specialists and special equipment are available. Patients arrive in much better condition, and the delay and exhaustion resulting from long journeys by other means of transport are avoided. Allowance has also to be made for the fact that the conditions of the last war and this are different in many respects. Except in Italy, there have not been the trench warfare conditions such as existed for the greater part of the last war, in which the opposing armies faced each other across a shell-torn no-man's-land over which the struggle swayed backwards and forwards for months at a time. Men worked and fought in the winter months up to their knees in mud in the water-filled trenches of France and Flanders. The wounded often lay out in the open for long periods before they could be brought in to medical aid. Under such conditions severe wound infections such as gas gangrene *et cetera* were inevitable. The numbers to be dealt with were also much greater. In the last war we lost 60,000 men killed as compared with 17,000 so far in this war, and the relative numbers of wounded are roughly in the same proportion.

Nevertheless, the services can justly claim that in this war a large number has been saved as a result of the continued extension of medical organization to provide for an ever-widening range of earlier treatment, as well as by the adoption of the continued advances in the treatment of wounds and disease.

Convalescent and Rehabilitation Depots.

Another way in which the medical services have extended their activities to a greater extent than formerly is that by which men on discharge from hospital are now restored to duty more quickly and effectively by further treatment and training at convalescent and rehabilitation depots. In these units, trained staffs and special equipment are provided in pleasant surroundings in the country or at the seaside; yet they are near enough to the large hospital centres to be convenient of access. An atmosphere of activity amongst cheerful surroundings is aimed at. Convalescence under such conditions is much more favourable to physical and mental recovery than in the wards of a hospital or in a camp. Detailed programmes are drawn up for each day, so that the patient's time is profitably and pleasantly employed, and adequate relaxation is also provided for. Amongst the remedial measures employed are massage, physical therapy, physical training, organized games and exercises, technical instruction in workshops, gardening and animal husbandry. Classes of instruction are conducted by educational officers, who have available a well-stocked library of technical books and literature as well as books of general educational and recreational value. Films are also used for instruction as well as for entertainment. The work is directed by medical officers experienced in this work, and each patient is reviewed once a week by a medical officer, to determine his rate of progress and so to advance him a stage further week by week to a more active programme of work and exercises.

The Royal Air Force was quick to appreciate the value of these units in effectively restoring to usefulness highly trained and valuable personnel, and it organized them early in the war. They are, in effect, human salvage depots. Some of our Royal Australian Air Force medical officers engaged in this work have had the benefit of working in similar Royal Air Force units in England, and the development of the units in Australia has proceeded along somewhat the same lines. The Australian Army Medical Service has also established convalescent depots where similar objectives are aimed at along the lines suited to its special requirements.

Industry in England has also realized the value of these convalescent depots to deal with the casualties occurring in industrial occupations. Quite apart from the moral responsibility of industry to take proper care of those injured during employment, it has been appreciated that well-organized depots, working under skilled direction on these lines, pay handsome dividends, just as they have done in the services; 98% of the men passing through these convalescent depots have been restored to useful duty. One such unit in England meets the needs of a group of 100,000 coal miners.

Dental, Nursing and Pharmaceutical Services.

In any review of the medical services, the invaluable work and assistance of ancillary services should be mentioned. Dental treatment is now provided to a much greater extent than before, and Australians seem to need more than most other people. Men and women otherwise eligible are no longer rejected from the services on grounds of dental unfitness, and the services now accept the responsibility of rendering them dentally fit. A full range of dental treatment is available, from recruit depots and camps of training right up to the units in the forward areas.

The nursing services have also been invaluable, and wherever they have served, either in this war or in the last, our nurses have gained a great reputation for the high standard of their work and their devotion to duty. Their record of achievement in the Middle East, in Greece, in New Guinea and in the islands provides a record of achievement of which all Australians should be proud and for which they should be grateful.

A full range of pharmaceutical services is also provided, and assures that the necessary drugs and medical and surgical equipment are available in every theatre of war. Reference should be made to the splendid work of the Medical Equipment Control Committee, through whose

organization and work these essential medical requirements have been procured and made available, not only for the services, but also for the civil community, despite the fact that our usual sources of supply in many items have been no longer available.

Coordination of Service and Civilian Requirements.

When Australia was faced with the necessity of organizing for total war, the doctors, dentists, nurses, chemists and other skilled personnel needed for the medical services of the Navy, Army and Air Force had of necessity to be obtained from our current resources. The proper care of our fighting men, on whom the security of all of us depends, must have first call, and war makes demands for medical service on a larger scale than peace-time conditions. Medical officers are required for the units in the field, for specialist duties in many directions, and for staffing the hospitals which provide many thousands of beds, both within and beyond Australia. Many of these units and hospitals are located in remote places where no facilities of any sort previously existed. These hospitals have been provided over and above existing civil hospital accommodation, which has been left practically untouched. There was no surplus of doctors in Australia before the war, and as about one-third of the medically fit doctors have been required for the fighting forces, it is obvious that medical service, just as is the case with so many other essential commodities which are in limited supply, has had to be most carefully rationed. It is sometimes thought that the services' requirements are excessive. Those, however, who have the responsibility of ensuring that our fighting men get the standard of medical care that the country desires and expects, know that this cannot be assured if the number of medical officers falls below the present number, which is the minimum necessary to meet our commitments. General Sir Bernard Montgomery, in an address after the Eighth Army's brilliant campaign in North Africa, stated that the efficiency of the medical services was a matter which affected every member of the service, and also the working of every aspect of its activities. Comparisons with other nations show that they have thought it necessary to provide medical officers on a more liberal scale than is the case in the Australian services. We cannot, therefore, afford to relax in the provision made for our troops.

The maintenance of the medical service required for the civil community under these conditions has been the subject of continued and careful planning, which began before war. A Central Coordination Committee was constituted and State medical coordination committees were set up to ensure that the best and most economical use was made of the doctors available. There are many special medical problems in Australia—its widely scattered population over a vast area, the large number of one or two doctor centres, and the great shifts of population which have occurred with the development of munition making and other war industries. Excellent work has been done by these State committees in every State, and the additional burdens and sacrifices of the doctors in civil practice have been willingly borne. The public has cooperated splendidly, and the strain is steadily becoming easier as more young doctors come forward each year. While it is true that victory can be achieved only by the defeat of the enemy in the field, our ultimate success in this grim struggle depends on the determination and continued self-sacrifice of the whole of the people of Australia.

CONCLUSION.

In this necessarily brief survey, I have attempted to show the special responsibility of the medical profession in these times of war. Its members will assuredly continue to justify its high tradition of service by their work both in the services and for the community, and in the doing of it will still further assist the national effort by strengthening and encouraging all those in special need of help in these troubled times.

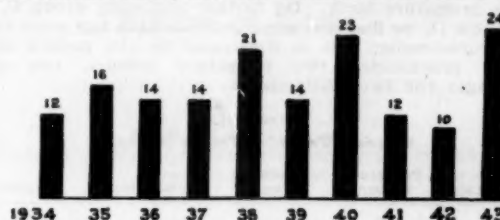
The reward will be reaped by our children and those who come after us, who will be enabled by our efforts to live their lives in happiness and security in this great land of ours and to continue to safeguard our national heritage.

SYPHILIS IN PREGNANT WOMEN: A STUDY BASED ON THE ROUTINE WASSERMANN AND KAHN TESTS PERFORMED ON 28,924 PATIENTS.

By T. DIXON HUGHES,

From the Obstetric Department of the Women's Hospital, Crown Street, Sydney.

In a previous communication to this journal in 1936, the results of the Wassermann test carried out as a routine measure on 3,404 patients attending for medical care during pregnancy were reported by Charlotte Gammie and myself⁽¹⁾; these results showed an incidence of syphilis of 1.06%. These 3,404 patients are included in the present total. The examination of the blood for syphilis by means of the Wassermann test was commenced in March, 1943, and the figures are carried forward to December, 1943. In all, 28,924 patients have now been tested, and 160 were found to give a positive reaction which in all cases was checked. This gives an incidence of 0.55%. Below in graphic form (Figure 1) is illustrated the number of patients whose blood has been found to yield the Wassermann reaction each year. The variation from year to year



will be noted, and although the incidence during the year ending 1943 is the highest, the number of positive findings is only three more than in 1938, and one more than in 1940. As this is the largest series yet published in Australia, it should be a fair indication of the incidence of syphilis in pregnant women attending hospital "antenatal" departments. In comparing the incidence with those of other countries, it is difficult to assess its significance owing to the mixture of populations and living conditions. Potter and Adair,⁽²⁾ in their book on the cause of fetal and neonatal deaths, state that a survey conducted in 1935 by the American Social Hygiene Association showed that 6% of 62,516 patients who attended 64 "antenatal" clinics were syphilitic. C. M. Guion, E. C. Adams and A. P. McCombs,⁽³⁾ in a review of the literature on the incidence of syphilis, state that the recorded incidence of syphilis varies widely according to the social habits, the race of groups studied, the accuracy of the study and the decade in medicine, ranging from 75% at a southern Negro clinic thirty to forty years ago to 0.95% of positive Wassermann reactions in 58,903 premarital tests made in 1938 by the New York City Department of Health. These authors report an incidence of 1.37% among 800 of their private patients. Table I shows a difference of only 0.25% in the Australian figures, and in a larger series the figures may more closely approximate to each other.

TABLE I.

Hospital.	Number of Patients.	Number of Positive Results.	Incidence.
The Women's Hospital, Crown Street, Sydney . . .	28,924	160	0.55%
The Queen Victoria Hospital, Melbourne ⁽⁴⁾ . . .	13,644	110	0.80%
The Bellevue Hospital, New York ⁽⁵⁾ . . .	16,437	790	4.80%

Of the 160 patients diagnosed as syphilitic, the records are available of 134. Potter and Adair state⁽²⁾ that

spirochaetes have not been demonstrated in the placenta or foetus before the fifth month of gestation; they state also that infection probably does not occur till about this time, and that it is not a common cause of early abortion, but contributes to foetal mortality in the last half of pregnancy.

The following tabulation shows the previous obstetric history of 98 *multiparae*:

Group A:	
No miscarriages or other catastrophes ..	41 (41.83%)
Group B:	
One or more miscarriages, but no other catastrophes ..	33 (33.6%)
Group C:	
Prematurity, neonatal death or stillbirth ..	24 (24.5%)

Table II shows the previous obstetric history of 98 *multiparae*. It tends to support the statement that syphilis contributes to foetal mortality in the last half of pregnancy. Forty-one, or 41.83%, had no history of miscarriage or premature labour, neonatal death or stillbirth. Thirty-three, or 33.6%, had a previous miscarriage, but no other abnormality; in considering this figure it has to be realized that the pregnancies ranged from the second to the fourteenth. But when we come to group C, we find that 24, or 24.5%, had a history of a stillbirth, a neonatal death or a premature birth. On further analysing group C, as in Table II, we find that some patients have had more than one catastrophe; this is illustrated by the patient with seven pregnancies, two premature labours, two miscarriages and two stillbirths.

TABLE II.
Analysis of Twenty-four Patients in Group C.

Number of Pregnancy.	Premature Labour.	Neonatal Death.	Miscarriage.	Stillbirth.
4	—	—	—	1
3	—	1	—	—
4	—	—	—	1
2	—	—	—	—
2	1	—	—	—
7	2	—	2	2
2	—	—	—	1
7	1	—	1	—
9	1	—	—	—
3	—	1	—	—
6	—	—	—	1
3	1	—	—	1
6	1	—	—	1
5	1	—	—	2
18	—	—	—	1
4	—	—	2	1
6	—	—	—	1
3	1	—	—	1
3	1	—	—	1
12	—	1	—	—
3	—	1	—	—
2	—	1	—	—
5	—	—	1	2
7	—	—	1	1
24	10	5	7	22

The results of the present pregnancies are as follows. The records of 134 patients were available; 120 children were born alive, eight were stillborn, and four died in the neonatal period, and there were two miscarriages. The combined stillbirths, neonatal deaths and miscarriages numbered 14 (10.4%).

These figures of a combined stillbirth and neonatal death rate of 10% are in contrast to the previous table of patients, in which the combined stillbirth and neonatal death rate was 24%. All the 134 patients whose latest pregnancies are analysed had treatment, the adequacy depending upon how early in pregnancy they reported to the out-patient department. The treatment was carried out in the majority of cases at the Rachel Forster Hospital, to the staff of which I offer thanks for their cooperation.

A plea was made in the previous article that the Wassermann test should be part of the routine "antenatal" examination. There is all the more need at the present time to guard against any increase in syphilis, to keep up the attack on this scourge of the human race, and to see that the children yet unborn are not branded with the imprint of the spirochaete; so it behoves any institution purporting to give antenatal care to see that it is done.

Acknowledgements.

In conclusion, I should like to thank all those who have helped in the compilation of these figures. To Dr. Eastmuir, who has delved into many records, to the staff of the pathology department of the Women's Hospital, whose members have most loyally cooperated, and to the staff of the Board of Health, whose members, with unremitting care and without complaint, have carried out the 28,924 Wassermann and Kahn tests, I offer my most sincere thanks.

References.

- (1) T. D. Hughes and C. Gammie: "The Results of the Routine Use of the Wassermann Test in 3,404 Patients Attending for Antenatal Care", *THE MEDICAL JOURNAL OF AUSTRALIA*, December 5, 1936, page 783.
- (2) E. L. Potter and F. L. Adair: "Foetal and Neo-Natal Death", 1940, page 127.
- (3) C. M. Guion, E. C. Adams and A. P. McCombs: "Blood Wassermann Reaction in 800 Private Patients", *New York State Journal of Medicine*, February 1, 1941, page 239.
- (4) E. A. McKnight: "Syphilis in Pregnant Women", *THE MEDICAL JOURNAL OF AUSTRALIA*, April 13, 1941, page 479.
- (5) M. D. Speiser: "Syphilis in Pregnant Women", *The New York State Journal of Medicine*, February 1, 1941, page 240.
- (6) E. L. Potter and Fred L. Adair: *Loco citato*, page 126.

FAINTING, SHOCK AND MUSCULAR ACTIVITY.

By J. WALKER TOMB, O.B.E., M.D.,
Sydney.

Fainting.

THE conclusions reached by Barcroft *et alii* in their paper on the physiology of fainting⁽¹⁾ are of outstanding importance to all those interested in the elucidation of the problem of shock. These conclusions, which are based on observation and experiment, are three in number: (i) The fall in blood pressure in fainting is not of cardiac origin, but is due to vasodilatation. (ii) In view of the pallor of the skin, this vasodilatation is likely to be in the skeletal muscles. (iii) The vasodilatation is sympathetic in origin.

In 1941 McDowall⁽²⁾ wrote as follows:

There is no hard and fast line between the unconsciousness of fainting and that of shock. . . . It is generally agreed that the fall in blood pressure (in fainting) is due to a dilatation of vessels somewhere, but evidence as to which vessels are dilated is somewhat circumstantial. . . . The best direct evidence on this point is . . . that of John Hunter, who . . . when bleeding a patient, observed that the venous blood turned bright red just before the patient fainted. Since the skin vessels were presumably constricted, we must conclude that there was a dilatation of the vessels of the muscles.

Shock.

In the Medical Research Council's Memorandum Number 1 (1940) on "The Treatment of Wound Shock",⁽³⁾ shock is subdivided into primary and secondary shock. Primary shock is there defined as "a condition of collapse which may follow soon after the receipt of an injury and which is not due to haemorrhage. The condition resembles fainting".

Rose and Carless⁽⁴⁾ write on the same subject as follows: "Shock may be described as primary or secondary according to its immediate or late relation in time to the causative lesion, although the former may pass readily into the latter."

In their article on traumatic shock, the Committee on the Survey of War Medicine of the National Health and Medical Research Council of Australia⁽⁵⁾ write as follows: "In the light of recent knowledge the subdivision into primary and secondary types of shock seems rather artificial. If shock is a complex response to trauma, primary and secondary shock are different phases of one process."

McDowall⁽²⁾ also writes as follows in the same connexion: "So far as burns are concerned I would agree with O'Shaughnessy that the old differentiation of primary and secondary shock is obsolete."

In a comprehensive survey of the physiology of the circulation and of the recorded clinical and experimental phenomena of shock, I arrived (1942) at the following conclusion:⁽¹⁾

... when the body receives any serious injury, an excessive number of afferent stimuli from the injured area reaches the sympathetic nervous system via the brain and spinal cord. The sympathetic nervous system reacts to this over-stimulation by constriction of the cutaneous and splanchnic blood vessels, and by dilatation of the blood vessels of the skeletal muscles, the net result of which (after, it may be, a preliminary rise) is, as a rule, a fall in blood pressure. When the stimuli are sufficiently severe to cause the dilator response in the muscle capillaries greatly to outweigh the effect of vasoconstriction in the skin and abdominal viscera, this fall in blood pressure occurs immediately and symptoms of collapse appear at once (so-called "primary" shock); but when the stimuli are less severe, their effect is cumulative, the fall in blood pressure is progressive, and collapse appears only after a certain interval of time (so-called "secondary" shock).

Owing to capillary dilatation and diminished blood pressure, as well as to complete suspension of muscular activity and loss of muscle tone, capillary stasis ensues. This in time leads to asphyxiation of the capillary endothelium from want of oxygen, with resultant exudation of plasma and loss of blood volume. A vicious circle is thus established which, if not broken within two or three hours, inevitably ends in death. While this vicious circle is in operation, the introduction of any additional stimuli of the sympathetic nervous system (such as pain, fear, cold, anxiety), as well as the reduction of blood volume by hæmorrhage, sweating or vomiting, will still further increase the state of collapse.

Muscular Activity.

With reference to the circulatory changes produced by muscular activity, McDowall⁽²⁾ states that muscular exercise, by opening up the blood vessels of the muscles, may in certain subjects produce fainting.

According to Samson Wright,⁽³⁾ the net effect of injection of adrenaline into the blood stream (which is equivalent to sympathetic stimulation) is "to redistribute the blood in a manner appropriate for conditions of stress: to drive it out of the splanchnic area and skin and send it mainly to the skeletal muscles and heart".

In the article referred to above,⁽¹⁾ I also wrote as follows:

To enable us the better to understand the phenomenon of collapse of the circulation in shock, it may be profitable to recall the mechanism of the blood supply to the skeletal muscles. According to Young *et alii* (1938), when a muscle is at rest only a few capillaries are open at any given moment; but at the same time there occur a continual closing of the visible capillaries and opening of others. When a muscle contracts, nearly all the capillaries open and remain open as long as the muscle is active. The number of capillaries open in a contracting muscle may be many times greater than in the same muscle at rest.¹ Changes, they add, must take place in the entire circulatory system if enough blood is to be brought to the muscles during periods of great activity. These changes are brought about through the agency of the vasomotor centre in the brain stem. Whenever, for example, a sudden stimulus causes someone to jump and run for his life, the arterioles and capillaries in the skin and abdomen contract, with great reduction in the amount of blood flowing to those parts, while at the same time the capillaries and arterioles of the muscles dilate so that nearly all the blood in the body is forced to flow rapidly through these latter vessels. In brief, they state, when the muscles of the body are active, activity on the part of the vasomotor centre² results in a shunting of the major volume of blood from the skin and abdominal organs into the muscles.

The physiological changes in the circulatory system which accompany intense muscular activity are therefore found in exaggerated and pathological form in traumatic shock.

¹ According to Samson Wright,⁽³⁾ the skeletal muscles in exercise may receive eighteen times their resting blood supply.

² All the constrictor fibres of the vasomotor centre, together with the dilator fibres to the muscles, leave the cord by the anterior nerve roots and pass from there via the white rami communicantes to the sympathetic nervous system.⁽⁴⁾

Conclusion.

It would therefore appear that fainting and shock are identical in origin, and are due to over-stimulation of the sympathetic nervous system, the circulatory changes in these two conditions being an exaggerated and pathological form of those which normally occur in intense muscular activity.

References.

- ⁽¹⁾ H. Barcroft, O. G. Edholm, J. McMichael and E. P. Sharpey-Schafer: *British Medical Journal*, Volume I, 1944, page 228; *The Lancet*, Volume I, 1944, pages 120 and 489.
- ⁽²⁾ R. J. S. McDowall: "Problems of the Circulation", *British Medical Journal*, Volume II, July 19, 1941, page 75.
- ⁽³⁾ Medical Research Council, War Memorandum Number 1: "The Treatment of Wound Shock", 1940.
- ⁽⁴⁾ "Traumatic Shock": Supplement to *THE MEDICAL JOURNAL OF AUSTRALIA* on War Medicine and Surgery, Number 4, December 12, 1942, page 15.
- ⁽⁵⁾ "Rose and Carless' Manual of Surgery", 1937, page 262.
- ⁽⁶⁾ R. J. S. McDowall: "Circulation in Relation to Shock", *British Medical Journal*, Volume I, June 8, 1940, page 923.
- ⁽⁷⁾ J. Walker Tomb: "Traumatic Shock and Concussion", *THE MEDICAL JOURNAL OF AUSTRALIA*, Volume I, 1942, page 250.
- ⁽⁸⁾ Samson Wright: "Applied Physiology", 1937, pages 195 and 506.
- ⁽⁹⁾ W. D. Halliburton and R. J. S. McDowall: "Handbook of Physiology and Biochemistry", Thirty-Fifth Edition, page 189.

Reports of Cases.

THORACOPAGUS TRIBRACHIUS DIPUS.

By M. H. L. WILLIAMS,
Research Scholar, Department of Pathology, Women's
Hospital, Melbourne.

OBSERVATIONS of dicephalic monsters are sufficiently rare to justify publication of the present report. Moreover, not only are such monsters of anatomical and pathological interest, but also they are apt to cause obstructed labour; therefore a record of the complications encountered in such a case may prove of general interest.

Clinical Record.

The patient, Mrs. W.C.P., aged twenty-nine years, had had two previous confinements resulting in normal living infants, the first weighing seven and a half pounds at birth, the second weighing eight and a quarter pounds. She became pregnant for the third time, the expected date of delivery being October 4, 1943. In September, 1943, an examination under anaesthesia was made in order to determine the fetal presentation. At that time two fetal heads were felt, and a twin pregnancy was diagnosed.

Labour commenced at 7 p.m. on October 11, the membranes ruptured at 12.10 a.m. on October 12, and for the next nine hours the patient had unsatisfactory uterine contractions with some intermittent loss *per vaginam*. At 9.30 a.m. on October 12 the patient was seen in consultation. One fetal head was then on the perineum, and a hard, rounded mass, presumed to be the head of the second twin, was felt in the left lower quadrant of the abdomen just above the pubes. Without difficulty forceps were applied to the head on the perineum, but it could be delivered only as far as the chin, because traction on this head was found to produce traction on the abdominal mass. It was not until this stage that a fetal abnormality was considered. Attempts were made to deliver the child by internal version. As they were unavailing, the first head was eventually removed by severance at the neck with scissors, and the remainder of the fetus was extracted by podalic version. The fetus was then found to be a dicephalic monster with a single set of lower limbs.

A manual removal of the placenta was then attempted, but it was found that the anterior wall of the uterus was ruptured and that the placenta had escaped through the tear into the abdominal cavity.

The patient was immediately transferred to the Women's Hospital, where resuscitation treatment was applied. Next morning subtotal hysterectomy was performed, and the placenta was removed from the right upper quadrant of the abdomen. After a stormy post-operative course the patient died, twenty days after delivery. The autopsy revealed a right-sided subphrenic abscess, subacute general peritonitis, and a right-sided empyema.

Anatomical Description of the Monster.

A fairly complete examination of the monster was made, both radiologically and by dissection. One head and one arm had been severed during delivery, so a rather crude reconstruction of the body was carried out for the purposes of photography and radiography.

General Description.

The body was that of a male double-headed monster with a double thorax. Below the umbilicus the body was that of a normal male fetus (Figure I).

Each head was well developed, being the size of that of a fetus near term, and neither showed any abnormality. The thoraces were fused by their axillary aspects, the shoulder and chest region being exceedingly broad. Two nipples only were present, one towards the lateral part of each side of the chest.



FIGURE I.



FIGURE II.

Two perfectly formed arms were present, a left arm attached to the left shoulder of the fetus on the left side of the body (first fetus) and a right arm attached to the shoulder of the fetus on the right side of the body (second fetus). Between the two necks arose a third rudimentary arm about ten centimetres long, four centimetres broad and three centimetres thick projecting upwards and ending in a blunt stump. It appeared to have a bony core (Figure II).

Two distinct spinal columns were palpated; they seemed either to fuse or to come into close conjunction when they reached the pelvis. Towards the lower end of the spine of the second fetus there was a collapsed spinal meningocele (Figure III).

Below the umbilicus a single trunk was present. It had one set of lower limbs and external genitals entirely without developmental abnormalities.

The Body Cavities.—A mid-line incision was made from the base of the third upper limb to the pubes, the skin and muscles of the chest wall were dissected away and the thoracic cage was exposed. The composite chest wall was then examined. The sternum of the first fetus appeared normal, but the sternum of the second fetus could not be identified; the ribs from the right side appeared to articulate with the left sternum. Removal of the anterior thoracic wall revealed a single large thoracic cavity containing two thymus glands and a single large mid-line pericardial sac with an atelectatic left lung on its left side and an atelectatic right lung on its right side. When the pericardium was opened, two completely separate hearts were found within the common pericardial sac (Figure IV). Behind the pericardium the other two lungs were discovered—the right lung of the first fetus and the left lung of the second fetus. Behind these again the two median sets of ribs were seen; they appeared to be fused at their anterior ends to form a ridge down the centre of the posterior wall of the thoracic cavity. The two diaphragms were fused in the mid-line to form a roof to the single peritoneal cavity. What appeared at first to be one large liver proved, on closer inspection, to consist of two livers fused in the mid-line of the body. A single set of umbilical vessels entered the *porta hepatis*

situated between and anterior to two gall-bladders. A spleen was found on the left side of the peritoneal cavity, but none on the right side.



FIGURE III.

Detailed Description of the Various Systems.

A dissection of the various systems in detail was then undertaken.

Alimentary Tract.—The alimentary tract was duplicated in entirety from the mouth to duodenum. The duodenums were separate in their first parts, but fused into a pouch-like



FIGURE IV.

descending portion, which then continued as a single tube. The liver, which, as already mentioned, had been formed by the fusion of two organs, was very large. It stretched almost entirely across the upper part of the abdominal cavity, extending from the extreme right side of the body to within a short distance of the left side. On its under surface were two gall-bladders, each with its own set of bile ducts. The common bile ducts entered the duodenum separately at a distance of about one millimetre from each other. The one spleen present was normal in size and shape and occupied the usual position in the left side of the peritoneal cavity (Figure V). The duodenum continued

into the jejunum, which had a single lumen for a distance of about five centimetres, although a well-marked groove lay along its outer surface, giving an appearance as of two portions of bowel fused longitudinally. The jejunum then divided into two quite separate tubes, each with its own mesentery, and continued in that manner for about forty centimetres, and then the two tubes fused again. The same longitudinal groove was apparent after the fusion and remained so for a further fifteen or sixteen centimetres, when it gradually became indistinct and the small bowel became a single normal channel, entering the caecum as such. The whole of the large bowel, including the appendix, was singly represented and occupied its normal position. From transverse colon to rectum it was filled with meconium.



FIGURE V.

Cardio-Vascular System.—The two hearts were completely separate, although contained in the same pericardial sac. The heart and great vessels of the first fetus were normal in all respects, but the heart of the second fetus was defective. It was small and oval in shape, and outwardly appeared to consist of a single auricle and a single ventricle. Dissection revealed one large auricle which received two large venous trunks. The ventricular part of the heart consisted of a normal-sized right ventricle and a very rudimentary left ventricle, the interventricular septum being almost completely absent. From the base of the heart arose one large efferent vessel, the aorta; there were three well-formed valves at the aortic orifice, and the coronary vessels were identified. After further dissection it appeared that the pulmonary arteries were arising from the arch of the aorta, but it was then found that they branched from a grossly dilated *ductus arteriosus*, which was patent only at its aortic end, while a thread-like vessel was occupying the normal position of the pulmonary artery. This minute vessel did not seem to be patent at its cardiac end. The structure of the heart therefore rather resembles that described as the tetralogy of Fallot. Arterial trunks in normal number and disposition arose from the aorta, while the venous blood returning from the head, neck and lungs all passed into the auricle through one large vein. The aorta was normal in its thoracic course and passed through the diaphragm in the usual position. This aorta and the other from the normal heart of the first fetus continued each on its normal course practically to the level of the pelvic brim, where they joined and almost immediately redivided into a right and a left common iliac artery. Each aorta gave rise to one renal artery, the aorta of the first fetus giving off a left renal artery to its own left kidney, while a right renal artery arose from the aorta of the second fetus to supply its own right kidney. A medium-sized vessel arose from the left abdominal aorta about two millimetres above its junction with the right

aorta. This was identified as the inferior mesenteric artery running to the single large gut. The venous return corresponded with the arterial supply.

Genito-Urinary System.—Two kidneys only were present, a left kidney occupying a normal position in the first fetus and a right kidney occupying a normal position in the second fetus. From each kidney a single ureter coursed downwards to enter the bladder, which appeared normal in all respects. The kidneys themselves showed no anomalies. Two completely separate suprarenal glands of usual size and appearance were present in the first fetus, but those of the second fetus, although of normal size and appearance, were incompletely fused at their medial aspects. Three testicles were found. The first was descended and occupied the left scrotal sac; the second was undescended and lay on the posterior abdominal wall, just above the brim of the right side of the pelvis; the third was found in the tissues at the same level as and between the upper poles of the kidneys. It was thought at first that this might be two testes fused, but microscopic examination showed a single testis and epididymus. The external genitals were those of a normal male infant, except for the emptiness of the right scrotal sac.

Skeletal System.—X-ray films of the skeleton of the monster revealed a duplication of almost all the bony structures above the level of the pelvis. Two sets of ribs for each fetus and two vertebral columns complete to the sacrum could be identified. Each sacrum articulated with a single *os coxae*. The pelvic bony structure thus consisted of two sacra and two pelvic bones. The bony structures in the region of the third upper limb were not easily identifiable, but there appeared to be a single rather short and rudimentary humerus articulating with the elements of two scapulae. All the other parts of the skeleton appeared normal.

Placenta and Cord.—There were a single placenta and a single umbilical cord. The cord contained one artery and two veins.

Summary of Anatomical Findings.

All structures above the diaphragm were duplicated, with the exception of the pericardium (one sac), the sternum (left side only) and the upper limbs (two normal arms and a third rudimentary arm). Between the diaphragm and the pelvic floor, the following were completely duplicated: stomach, pancreas, gall-bladder, adrenals, aorta and spinal column. The liver, duodenum, small intestine and testes were incompletely duplicated; the spleen, large intestine, urinary tract and *os coxae* were not duplicated.

There was no duplication of the lower extremities. The monster just described represents a *duplicata anterior* of the subgroup *thoracopagus tribrachius dipus*.

Comment.

The monster dissected at the Women's Hospital agreed in all anatomical particulars with the description of two similar monsters reported by Mudaliar, except in the details of the circulatory systems. In both Mudaliar's cases there was some direct communication between the two hearts; in one an atrium was common to both, and in the other the two hearts were united in the median line by a transverse sac in the region of the auricles. This must have added considerably to the complexity of cardiac function and blood circulation.

The accepted idea as to the origin of double monsters in general is that they are the product of an incomplete fission of a single fertilized ovum. According to the region of the fetal axis affected and the degree of completeness of division, various types of double monsters are formed. Double monsters are usually called *pagi*, or "fixed" twins, and names are given to them according to which parts of the bodies are fixed together. The present example is designated *thoracopagus*, as the two bodies are fixed by the thoraces.

The splitting of the fetal axis may be complete at the anterior end only or at the posterior end only, resulting in the formation of a so-called anterior or posterior *duplicata*. The *thoracopagus tribrachius dipus* would then be classed as of the anterior *duplicata* type, whereas the *Janus* type of monster with two faces looking in different directions from the one head and with duplicated lower limbs is of the posterior *duplicata* variety. The third type of double monster, joined only in the middle, is, according to the literature, much more common than either the anterior or posterior *duplicata*. Of this type were the famous Siamese twins Chang and Eng, who were joined together only by a band of tissue between the thoraces; *thoracopagus tetrabrachius tetrapus* is the name of the group to which they belonged. As all double monsters arise from the splitting of a single fertilized ovum, the two fetuses must be identical twins, and therefore are always of the same sex.

Quite a simple classification of double monsters is given by Ballantyne in his book on fetal monstrosities, while Sheares in his article gives a rather more complicated list.

Double monsters of any kind are exceedingly rare in the experience of the Women's Hospital, Melbourne. During the period from July 1, 1931, to June 30, 1943, 47,048 babies were born in the hospital, including 549 pairs of twins and five sets of triplets. In the whole of this series no double monster of any sort was delivered. Reaves speaks of the *thoracopagus tribrachius dipus* monster as being "not rare"; but he does not quote figures to indicate what he means by rare. Mudalliar has reported a series of nine cases of double monsters including two of the *thoracopagus tribrachius dipus* type; but although he mentions that four of his cases occurred in a series of 25,000 deliveries, he does not give information regarding the relative incidence of the various kinds of monstrosities he describes. A complete survey of recent literature has not been attempted, but all Mudalliar's cases, together with those of Sheares and the single cases reported by Shaw *et alii* and by Reaves, occurred among coloured races. This fact, together with the local figures quoted above, would lead one to conclude that double monsters are more commonly observed amongst coloured peoples.

Fetal abnormalities such as the double monsters are of interest mainly to the pathologist and to the embryologist, but they are also of obstetrical importance on account of the complications they may cause during labour, as instanced in the preceding case report. The greatest difficulties in delivering a dicephalic monster arise when the heads present. In the article by Shaw *et alii* it is stated that a double monster has never been diagnosed before the onset of labour, although the presence of a twin pregnancy may have been assumed. Recently, Hunter has reported a case of a dicephalic monstrosity, identical with the one here reported, which was diagnosed radiologically in the antenatal period when a film was taken to determine a doubtful presentation. It is obvious that a clinical diagnosis is extraordinarily difficult, if not impossible, especially when such anomalies are so rare that they are probably not considered. Even radiology may fail if the fetal skeletons are unfavourably placed in relation to the maternal skeleton, or if the union is slight, as often occurs in cases of *thoracopagus tetrabrachius tetrapus*. Fortunately, like many other abnormalities, double monsters do not always reach maturity in their fetal life, and when born prematurely may be delivered spontaneously.

Acknowledgements.

I wish to thank Dr. H. F. Bettinger for his help in the preparation of this paper; Dr. Elliot True, who supplied the clinical details; Sister Blythe, of the radiological department of the Women's Hospital, who took the X-ray films; and Miss Shirley Lowday, of the Department of Pathology of the Women's Hospital, who prepared the photographs.

Bibliography.

- J. W. Ballantyne: "Manual of Antenatal Pathology and Hygiene: The Embryo."
 E. F. Hunter: "Diagnosis of Dicephalic Monster by Antenatal X-ray Examination", *The Journal of Obstetrics and Gynaecology of the British Empire*, Volume XLVIII, 1941, page 251.
 A. L. Mudalliar: "Double Monsters: A Study of their Circulatory Systems and Some Other Anatomical Abnormalities and the Complications in Labour", *The Journal of Obstetrics and Gynaecology of the British Empire*, Volume XXXVII, 1930, page 753.
 B. J. Reaves: "Dicephalous Monster", *American Journal of Obstetrics and Gynecology*, Volume XXXVII, 1939, page 166.
 C. C. Shaw, B. B. Brumbaugh and M. A. Novoy: "An Anatomical and Clinical Study of a Thoracopagus Monster Delivered Alive at Full Term", *American Journal of Obstetrics and Gynecology*, Volume XXVII, 1934, page 655.
 B. H. Sheares: "The Fetal Abnormalities that Cause Difficult Labour", *The Journal of Obstetrics and Gynaecology of the British Empire*, Volume XLVIII, 1941, page 354.

SEVERANCE OF THE AORTA AND PULMONARY ARTERY IN A CLOSED INJURY TO THE CHEST.

By J. B. CLELAND, M.D.,

Marks Professor of Pathology, University of Adelaide.

In the early hours of the morning of July 9, 1943, a young airman, aged nineteen years, walking with a companion with his back to oncoming traffic, was struck from behind by a

taxi-cab, carried along a short way, and thrown to the roadway.

At the post-mortem examination, though there was no apparent external injury to the chest and the ribs were not broken, the aorta and pulmonary artery were found to be torn across as if cut by a knife just after their commencement, with a large tear through the base of the heart and left auricle and rupture of the pericardium behind the heart. In the aorta, just above the severed part, was another partial tear. There were 90 ounces of blood in the left pleural cavity. There were abrasions to the face, a scalp wound, and injuries to three front teeth.

It is hard to explain the complete severance of these two large vessels without any signs of injury to the chest wall. Presumably the chest was severely compressed in some way, probably by the under side of the motor-car pressing the body against the roadway. Perhaps this intense compression coincided with the heart emptying its chambers. In these circumstances the two large vessels would be tense and with the extra pressure more liable to rupture.

A somewhat similar case has been reported by Wilson and Tunbridge⁽¹⁾ in describing injuries due to blast. They give an account of a woman, aged twenty-five years, whose mouth and nose were covered with blood-stained froth. There was no evidence of external injury; the chest wall was intact; the pericardial sac was full of blood and clot. The myocardium was intact. The blood seemed to come from a large transverse tear an inch long in the aorta about half an inch above the aortic ring. The left coronary cusp of the aortic valve was also ruptured, but the free edge was intact. There were also hemorrhages in the lungs and the peritoneal cavity and blood-stained fluid in the pleural cavities.

Later, J. V. Wilson⁽²⁾ stated that he had not seen further cases of laceration of the heart or large vessels in his series of war injuries.

Taylor⁽³⁾ describes the case of a boy of eight knocked down by a heavy cart and supposed to have been run over, who had not "the slightest trace of abrasion or bruising of the skin of the chest nor behind the ribs and sternum, but the upper lobe of the right lung had been cut completely off from the root of the lung and was floating freely in a pleura full of blood".

References.

- ⁽¹⁾ J. V. Wilson and R. E. Tunbridge: "Pathological Findings in a Series of Blast Injuries", *The Lancet*, Volume I, 1943, page 259.
⁽²⁾ J. V. Wilson: "The Pathology of Closed Injuries of the Chest", *British Medical Journal*, April 17, 1943, page 470.
⁽³⁾ "Taylor's Principles and Practice of Medical Jurisprudence", Ninth Edition, Volume I, page 344.

PLASMODIUM OVALE MALARIA: A REPORT OF TWO CASES CONTRACTED IN NEW GUINEA.

By A. V. JACKSON,

Major, Australian Army Medical Corps.

In 1922 Stephens⁽¹⁾ found in the blood of a soldier from East Africa a species of malaria parasite which he named *Plasmodium ovale*. It was a "non-ameboid, pigmented, compact, round or oval parasite, resembling quartan, in a red cell showing Schuffner dots, which is either normal in size or only slightly enlarged. . . . The red cells in which the parasites occur are not uncommonly oval with irregular fimbriated margins". A more detailed account of the morphology is given by James *et alii*,⁽²⁾ who also point out that an apparently identical parasite was described but not named by Craig⁽³⁾ in 1914. They were able⁽⁴⁾ to transmit the infection through *Anopheles maculipennis* and the morphological features of the parasite were preserved from patient to patient. There, therefore, seems very little doubt that *Plasmodium ovale* is a distinct and constant species. In 1939 Sinton and his co-workers⁽⁵⁾ reviewed the literature and found that almost all cases came from equatorial Africa. There were reliable records of only three cases contracted outside Africa—one from eastern Russia, one from Persia and one from South America. In 1942 Yao and Wu⁽⁶⁾ reported a mixed infection of *Plasmodium falciparum* and *Plasmodium ovale* in a Chinese. Whilst working in the Solomons Group, Dr. G. M. Heydon⁽⁷⁾ found in the blood of

a native a parasite which he regarded as probably *Plasmodium ovale*.

The object of this paper is to report two more cases of infection by *Plasmodium ovale*, both contracted in New Guinea.

Clinical Notes.

Both patients were soldiers who had not been in a malarious area before going to New Guinea. They were treated and their condition was diagnosed in an Australian general hospital in Port Moresby—one in July, 1943, and one in January, 1944.

Private D., aged twenty-one years, had lived only in Tasmania and New South Wales until he came to New Guinea in January, 1942. Since then he had been mainly in the Port Moresby area, but had been along the Kokoda track as far as Uberi and also to the west of Port Moresby near the mouth of the Goldie River. For the ten months before admission to hospital he had remained within twelve miles of Port Moresby. In August, 1942, he had a fever which was diagnosed as "malaria not confirmed" and treated with quinine. He then remained well until June 28, 1942, when he developed a mild fever. On July 1, 1943, he was admitted to hospital. A few malarial parasites were found in a thick film of his blood and he was then given ten grains of quinine orally. The parasites were thought to be *Plasmodium ovale*. In the hope that this would be confirmed by the observation of the whole of the asexual cycle, further quinine was withheld. However, though only one single dose of quinine had been given careful search failed to reveal any parasites in thick films taken on the following three days. The temperature returned promptly to normal and the patient remained afebrile and symptom-free for twelve days. He then became feverish again on July 13, 1943. Parasites were again demonstrable in his blood. They were observed through several asexual cycles and found to show all the characteristics of *Plasmodium ovale* (see below). No other species of plasmodia were observed in his blood. Although no specific therapy was being given, the parasites never became numerous. By July 22 they were diminishing in numbers, the symptoms (which at no stage amounted to more than mild headache and chilliness without any real rigors) were lessening and the attack appeared to be subsiding without treatment. A full routine course of quinine, "Atebrin" and "Plasmoquine" was then given and the patient had an uneventful convalescence. To date (June, 1944) he has not been readmitted to an army medical unit, so his infection was apparently completely cured by one course of antimalarial therapy.

Private P., aged twenty-six years, had lived in Australia till he came to New Guinea in February, 1943. For three months before admission to hospital he was camped near a rubber plantation about twenty-five miles from Port Moresby. Prior to this he was in the Markham Valley. His infection may have been contracted in either area, both of which were malarious. On December 30, 1943, he reported sick with a history of headaches, pains in the limbs and shivers for the previous five days. He was admitted to hospital, *Plasmodium ovale* was found in his blood, and a routine course of quinine, "Atebrin" and "Plasmoquine" was commenced. On January 1, 1944, his temperature rose to 103° F.; next day it was normal, and remained so subsequently. To date there has been no recorded relapse of his fever.

Morphology of Plasmodium Ovale.

The parasites seen in these patients conformed with the classical descriptions by Stephens⁽¹⁾ and James.⁽²⁾

The trophozoites were small and compact and rather similar to those of *Plasmodium malariae*. Even the most mature trophozoites were quite different from the large irregular amoeboid forms characteristic of *Plasmodium vivax*. Sometimes the growing trophozoites were elongated along the longer diameter of the oval red cells, but frank equatorial forms characteristic of *Plasmodium malariae* were not seen. The mature schizonts usually contained eight or nine merozoites; never more than twelve. The pigment was dark and coarse, resembling that seen in *Plasmodium malariae*. The gametocytes were relatively small and usually did not fill the red cell. The infected red cells were normal in size or only slightly enlarged, and at all stages of development the parasite contained well-marked Schüffner dots. Approximately 50% of them were definitely oval or pyriform in

shape (uninfected red cells in the same field were quite circular, so this appearance was not due to distortion in the preparation of the thin film). The edges of the infected red cells were, in places, fimbriated, particularly along the flattened side of pear-shaped cells.

Discussion.

In routine work, if thick films are being relied upon for the identification of the type of parasite, it is quite likely that a *Plasmodium ovale* infection will be misdiagnosed as *Plasmodium vivax* or *Plasmodium malariae*, or, more likely, as a mixed infection of the two. However, a well-stained thick film showing small compact parasites resembling *Plasmodium malariae*, but surrounded by well-marked Schüffner's dots, should suggest the possibility of a *Plasmodium ovale* infection. Careful examination of repeated thin films taken over a complete asexual cycle should confirm or refute this suggestion.

The clinical course is always mild and the pyrexia, which is tertian in its periodicity, is never marked. James⁽²⁾ found that infections with *Plasmodium ovale* tended to die out without any treatment. In neither of the two cases reported here was the patient very ill, and the patients were rapidly and apparently completely cured by one course of quinine, "Atebrin" and "Plasmoquine".

Summary.

Plasmodium ovale parasites were found in the blood of two patients at an Australian general hospital in New Guinea. These patients had not previously been in a malarious area, and so presumably the infections were contracted in New Guinea. *Plasmodium ovale*, which has not hitherto been reported from New Guinea, is a rare parasite and infections by it should only be diagnosed after a very careful examination of several thin blood films taken at different stages of the asexual cycle.

Acknowledgements.

The blood films from these patients were examined by Brigadier N. H. Fairley, Director of Medicine, Australian Imperial Force, and Lieutenant-Colonel I. M. Mackerras, and they agreed that there was no reasonable doubt that the parasites from both cases were typical examples of *Plasmodium ovale*. I wish to thank them for their authoritative help.

I wish to thank Major-General Burston, Director-General of Medical Services, for permission to publish this report.

References.

- (1) J. W. W. Stephens: "A New Malaria Parasite of Man", *Annals of Tropical Medicine and Parasitology*, Volume XVI, 1922, page 383.
- (2) S. P. James, W. D. Nicol and P. G. Shute: "Plasmodium Ovale Stephens, 1922", *Parasitology*, Volume XXV, 1933, page 87.
- (3) C. F. Craig: "New Varieties and Species of Malaria Parasite", *Journal of Parasitology*, Volume I, 1914, page 85.
- (4) S. P. James, W. D. Nicol and P. G. Shute: "Plasmodium Ovale Stephens: Passage of the Parasite through Mosquitoes and Successful Transmission by their Bites", *Annals of Tropical Medicine and Parasitology*, Volume XXVI, 1932, page 139.
- (5) J. A. Sinton, E. D. Hutton and P. G. Shute: "Studies of Infections with Plasmodium Ovale: Natural Resistance to Ovale Infections", *Transactions of Royal Society of Tropical Medicine and Hygiene*, Volume XLII, page 751.
- (6) Y. T. Yao and C. C. Wu: "On the Peculiar Morphology of a Malaria Parasite and the Possibility of its being Plasmodium Ovale", *Journal of Tropical Medicine and Hygiene*, Volume XLV, page 9.
- (7) Personal communication: Lieutenant-Colonel E. Ford, Chief Malariaologist, Australian Imperial Force.

Reviews.

A HANDBOOK ON X-RAY DIAGNOSIS.

A SMALL book entitled "The Arthropathies: A Handbook of Roentgen Diagnosis", by Alfred A. de Lorimier, has been received for review.¹ It is one of a series of handbooks of Röntgen diagnosis. It deals with abnormalities and diseases

¹ "The Arthropathies: A Handbook of Roentgen Diagnosis", by Alfred A. de Lorimier, A.B., M.A., M.D.; 1943. Chicago: The Year Book Publishers, Incorporated. 8" x 5½", pp. 319, with many illustrations. Price: \$5.50, post paid.

of joints, and the subject is presented as a series of lectures which have been delivered to officers at the Army Medical School at Washington and the Army School of Roentgenology at Memphis. These lectures are arranged in two parts; Part I deals with the peripheral joints and Part II with the joints of the spine. The brief introduction includes a description of the technique of joint radiography, and a short discussion on joint anatomy accompanied by clear and comprehensive illustrations. The joint lesions are classified on a simple aetiological basis, and each condition is discussed under headings and is accompanied by very good plates with clear legends.

There is nothing new in this book; it is, as the subtitle states, "a handbook", and as such is both interesting and informative.

A YEAR BOOK OF DISEASES OF THE EYE, EAR, NOSE AND THROAT.

The first chapter in the opening part of "The 1943 Year Book of the Eye, Ear, Nose and Throat",¹ the part dealing with the eye, is concerned with eye complications in malaria. It is written by Louis Bothman, who edits the first part. In this chapter the ground is well covered, every structure in the eye being considered in turn, and reference being made to no less than 111 articles in the journals. The subsequent sections deal with: the eyelids and the lachrymal apparatus; exophthalmos and the orbit; the conjunctiva; the cornea; the iris and ciliary body; the lens and cataract; the choroid; the optic nerve; glaucoma; the retina; the sclera and vitreous; neurology and visual fields; refraction and muscles; therapy; surgery; injuries; general and miscellaneous subjects. Of these the sections on the cornea, neurology and therapy are perhaps the most interesting. Keratoconjunctivitis is dealt with at some length. The section on neurology will be of interest to the physician as well as to the ophthalmologist. The references to use of the sulphonamides in eye conditions should appeal to all who are interested in ophthalmic disorders.

The two parts of the book dealing with the ear and the nose and the throat have been edited by S. J. Crowe. Ear conditions are discussed under the headings of hearing; otosclerosis; middle ear, mastoid and intracranial conditions; the inner ear; ear, nose and throat conditions in children. In the middle ear section photomicrographs have been published to illustrate some of the abstracts; they show up surprisingly well on the supercalendered paper that has been used. A. G. Pohlman's article on a diaphragm-rod prosthesis for the middle ear is abstracted at some length. Prominence is given to Perlman's discussion on lesions of the conduction apparatus and to Karsten Kettel's views on facial palsy of otic origin. The diagnosis and management of severe infections in infants and children are reviewed in the light of experiences since the introduction of sulphonamide therapy. Too much stress cannot be laid on the need for care in use of sulphonamides for children suffering from mastoid conditions and in the treatment of respiratory infections.

In the part devoted to nose and throat conditions chemotherapy also occupies a prominent place; several references are made to penicillin. In regard to nasal and sinus conditions the editor insists on the need for the intelligent use of chemotherapeutic agents and for bacteriological studies to control their administration.

This volume will be useful to all who study eye, ear, nose and throat conditions.

VENEREAL DISEASES: DIAGNOSIS AND TREATMENT.

The "Handbook of Diagnosis and Treatment of Venereal Diseases" by A. E. W. McLachlan is a pleasing volume and should be well received.² In the preface the author states that the intention is "to provide a concise introduction to the principles of diagnosis and treatment of the venereal

¹"The 1943 Year Book of the Eye, Ear, Nose and Throat"; the Eye, by Louis Bothman, M.D.; the Ear, Nose and Throat, by Samuel J. Crowe, M.D., with the collaboration of Elmer W. Hagens, M.D.; 1943. Chicago: The Year Book Publishers, Incorporated. 7" x 4½", pp. 580, with illustrations. Price: \$3.00.

²"Handbook of Diagnosis and Treatment of Venereal Diseases", by A. E. W. McLachlan, M.B., Ch.B. (Edinburgh), D.P.H., F.R.S.Ed.; 1944. Edinburgh: E. and S. Livingstone. 7½" x 5", with many illustrations, some in colour. Price: 15s. net.

diseases, suitable for the instruction of the elementary student, yet adequate for the needs of the busy practitioner desirous of quickly refreshing his knowledge of treating cases in his own practice". This aim has been achieved. Sufficient information is given for the general practitioner to carry out most of the ordinary procedures of diagnosis and treatment in both male and female, with the exception of penicillin treatment.

Just over half of the volume deals with syphilis. The instruction is clear and the tables and illustrations are good. Particular attention is paid to the differential diagnosis of the chancre, the collection of exudate from a sore for examination and the use of the dark ground illumination microscope. The Wassermann test is dealt with briefly, and mention is made of conditions which may produce positive reactions, though not syphilitic. The chapter dealing with the diagnosis of early generalized (secondary) syphilis covers sufficient ground to enable a reliable diagnosis to be made in the majority of cases. Fifty-eight pages are devoted to the diagnosis of acute syphilis, and late generalized syphilis also receives satisfactory consideration.

Treatment is covered in sufficient detail for guidance in the majority of conditions, and mention is made of fever therapy and an outline given of the five-day multiple injection method with "Mapharsen".

The section dealing with gonorrhoea is also good, but unfortunately this volume was apparently in process of publication as penicillin was coming into use, and as a result no mention has been made of this drug which has so dramatically changed the outlook in most gonococcal infections.

The author appears to favour urethral irrigation with sulphonamide therapy, although many do not regard this as either desirable or necessary in the treatment of those patients who respond to sulphonamides within seventy-two hours of commencement of treatment.

The importance of surveillance and repeated tests over a period of at least three months is mentioned as necessary after apparent cure, and this is especially emphasized in the case of the female.

This volume, with its 159 illustrations, nineteen in colour, distributed over its three hundred and fifty-two pages of information, is obviously the work of a teacher who appreciates the need for a concise handbook for the guidance, not only of the undergraduate, but of the busy practitioner as well, and as such it may be recommended.

ENDOCRINE DISORDERS.

In the main Le Marquand and Tozer's book is a description of the work carried out by the authors in a busy outpatient department.¹ In view of the inevitable difficulties which they must have encountered it is worthy of the highest commendation. Although the title would lead one to believe that only endocrine disorders of childhood and adolescence are in the scope of the work, the authors have also described ductless gland disturbances peculiar to the adult where they considered that it would throw light upon similar disorders in childhood. They stress the value of routine measurements (such as those of height, weight and span *et cetera*) and emphasize the subtle connexion between various endocrine symptoms. The importance of a complete physical examination in order to exclude such conditions as renal dwarfism and coeliac infantilism which are, of course, unresponsive to endocrine therapy, is underlined. In regard to the details of the book a good chapter on the physiology of the ductless glands is followed by a description of methods of examination suitable for patients suffering from disorders of these glands. The remaining chapters are devoted to a systematic description of various endocrine disorders. An appendix containing two tables, one of commercial sex hormone preparations and the other giving normal measurement for age (after Engelbach), should be useful for reference. While we do not share all the authors' enthusiasm for the use of pituitary extracts in childhood "pituitary" obesity, it is only fair to state that they stress the difficulty of assessing the results of treatment in the condition because of the natural effects of development. The book is illustrated by 49 plates and the paper and binding conform to the authorized economy standard dictated by war conditions.

¹"Endocrine Disorders in Childhood and Adolescence", by H. S. Le Marquand, M.D. (London), M.R.C.P. (London), and F. H. W. Tozer, M.D. (London), M.R.C.P. (London); 1943. London: Hodder and Stoughton Limited. 8½" x 5½", pp. 306, with illustrations. Price: 15s. net.

The Medical Journal of Australia

SATURDAY, SEPTEMBER 9, 1944.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

MEDICAL ETIQUETTE OR MANNERS.

IN any discussion on medical etiquette it is important, especially if the discussion is likely to reach the laity, to distinguish between medical ethics, which is a moral question relating to principles and rules of conduct, and etiquette, which has to do with manners especially as between one practitioner and another. In his well-known text-book on medical ethics Saundby begins his discussion on etiquette with a reference to the popular misconception among the public that the medical profession has rules the object of which is to shield the profession as a whole and its individual members from the consequences of their ignorance and mistakes, and that to effect this, short of perjury or the sacrifice of life, there is no hesitation in suppressing the truth. Saundby points out that, though colleagues are entitled to support, consideration and courtesy, these are subject to the higher interests of the health of the patient. There is, he holds, probably no profession whose members are so frequently confronted with circumstances which try their tact and discretion to the uttermost, not in the interests of the medical profession, but in the interests of their patients. Not seldom the practitioner is placed in a difficult position with another practitioner by the ignorance of a patient regarding procedure when, for example, he wishes to obtain further advice about an ailment. Here, as in all other such circumstances, the welfare of the patient must be considered first and foremost and the personal pride or susceptibilities of the practitioners must be relegated to second place or put on one side altogether. When we speak of medical etiquette then, we refer generally to intraprofessional relationships, the relationship of one practitioner to another, and this can be summed up in the one word manners.

Though manners have been described cynically by Emerson as a contrivance of wise men to keep fools at a distance, they may best be compared to oil that will make the wheels of social intercourse run smoothly. Possibly they are not essential—the wheels may run without oil, but there is certain at times to be jangling and clanking and difficulty, if not occasional stoppage. The

manners in question should, to change the metaphor, be part of man's everyday apparel; they should fit him and become him like a comfortable and well-tailored suit of clothes. They should not be like a priestly vestment or an academic robe, assumed for a particular purpose on a special occasion. Manners are born of education out of understanding and goodwill and they bespeak a respect for the feelings and comfort of other people. A child is not naturally good mannered. As the child grows he learns the meaning of different events and the significance of the things that surround him. What he is taught will vary with the place of his upbringing—behaviour accepted in Great Britain may not be looked on with favour in China, an American's attitude may not be tolerated in Turkey, nor an Australian's in Thibet. But if we think only of our own country it will be clear that a child's manners will be moulded by both precept and example. Too often grown-up people have the idea that instruction of a child is sufficient. He is told: don't do this, or don't do that; or, you must always do this or that. Under the eagle eye of his mentor the child will obey, but unless he sees that the mentor always does this or that as he tells the child to do, no lasting impression on the child will be made. Grown-ups expect children to be polite to them and sometimes forget that they should be polite to children. Age has no right to claim the respect of youth merely because of the number of its years. Age must show that it is worthy of respect; respect must be earned. Children are not easily deceived. In their adolescent years they can be the keenest and most discerning critics. If a man sets out to mould the behaviour of a growing child and can hold its love and respect through adolescence into manhood, it may be said that example has kept pace with precept and neither person is likely to have cause for regret for anything that the other may do. Behaviour covers a large ground, but manners in the sense of the present discussion are inseparable from it. Manners then may up to a point be regarded as a reflection of underlying character. Of course, a polished surface may become dull, and a little attention, possibly with the application of a renovating agent, become necessary. So with manners.

Much of the foregoing can be applied to the subject of medical etiquette, the question of manners as between one practitioner and another. A student is taught by his medical teachers that certain attitudes must be adopted and certain practices must be observed by practising doctors to preserve harmonious relations between them. The seniors are here in the position of the mentors of a child—they must themselves display the qualities that they would see in their juniors. Many a young graduate starting in practice is impetuous and says and does things which on consideration he might hesitate to say and do. Instead of adopting an I-am-holier-than-thou attitude, the senior may tactfully point to the error and then, to drive the lesson home, do something for the junior that perhaps need not be done except perhaps as an example. In one matter the senior should be particularly careful. When a new practitioner comes to a district to start practice (he is not always a junior graduate) he generally pays a formal call on practitioners in the district. This formal call should be punctiliously returned. Neglect of this will erect a barrier that will be broken down only after a long time has passed. This discussion, however, has been undertaken not so much for those already in practice

as for those who will before long return from active service and be anxious to settle in civilian practice. The dulled surface in the matter of medical etiquette needs to be polished by those already in practice that they may help their would-be new colleagues. The medical officers in the several branches of the services have been away from civilian practice for some years; some have never been in civilian practice. The lot of many has been cast in difficult, sometimes in dangerous, and often in uncongenial surroundings. If their medical manners have suffered in the process it will not be surprising. Those who have stayed at home to carry on the necessary work on the "home front" are mostly overworked and tired. They have, however, remained in their usual *milieu*, the *milieu* into which those on active service will return. It will be for them to hold out the right hand of fellowship to the newcomers, and if it should be necessary, to make allowances for any lapse in the observance of the usual procedures of medical etiquette. For all practitioners, old and young, civilian and military, we would conclude in the words of Saundby:

... the opportunity must not be lost of emphasising the need of courtesy, and even of formal courtesy, to one another. If calls are habitually not returned, letters left unanswered, or messages sent by ignorant people who cannot be expected to have any diplomatic graces, and who may quite possibly make an inoffensive speech sound harsh and rude, medical etiquette is more seriously violated and more harm is done to the individual himself and to the profession than by all those irregularities of door-plates or medicine bottles which are too often submitted to the censure of the medical journals.

Current Comment.

GALL-BLADDER DISEASE IN ELDERLY PEOPLE.

The frequency of gall-bladder disease in older people has been well known to pathologists for many years, and further additions to knowledge were made by some of the pioneer abdominal surgeons, to whom we owe much of our knowledge about upper abdominal disease. Further stimulus has been given to the study of gall-bladder disease by physicians, who have specially noted the simultaneous occurrence of symptoms arising from a diseased gall-bladder and those suggestive of angina. The swing of the pendulum brings us back to pathology, for enlightenment is surely most likely to be gained by following researches into the disordered physiology of the living as well as the changes found after death. Julius Rosenthal has recently published a study on the autopsy evidence of gall-bladder disease.¹ Various authors have given very different figures: Rosenthal quotes published series which vary from 10% of autopsies to 30%. His own figures are based on patients in the later decades of life, 89% being over fifty years of age and 73% over sixty. He has reviewed an unselected group of 300 autopsies on patients in a neurological hospital and a city home. Of these, 38% showed some type of gall-bladder disease, the separated figures for the sexes being 33% for males and 46% for females. As might be expected, the percentages rose as the age increased. The commonest variety of disease was gall-stones, and only few undoubted cases of cholecystitis without stones were encountered. The usually accepted opinion that cholecystitis and cholelithiasis are related was confirmed by histological examination, though it is pointed out that the criteria for inflammation of the mucosa of the organ are rather vague, and the speed with which post-mortem autolytic changes occur must be remembered. Multiple stones were by far the commonest finding, but single stones were found in about a quarter of the cases in which calculi occurred.

¹ *Annals of Internal Medicine*, June, 1944.

The clinical histories are of interest in these cases if sight is not lost of the difference of opinion as to the possibility of gall-stones being symptomless. In this series of 78 patients suffering from cholelithiasis 52 had given no history suggestive of gall-bladder disease. Vague abdominal symptoms were recorded in twelve cases, and in the same number the symptoms were sufficiently definite to warrant a clinical diagnosis. In this last group over half the patients had had attacks of colic.

Rosenthal concludes that not all gall-bladder disease warrants a serious prognosis in the elderly. Lesions of the liver, such as periportal infiltration of round cells or fibrosis, were found more frequently in the subjects of gall-bladder disease than others. These findings do not seem to be of significant degree in every case, but they are worth noting.

It is a pity that the condition of the coronary vessels and the myocardium was not described, for the position is still not clear in this regard. Certain carefully controlled series have been published in the past which seem to indicate that myocardial degeneration following coronary sclerosis may occur rather more commonly in the subjects of gall-bladder disease than in others. It is not certain, however, that a true causal relation exists. Undoubtedly some patients who have anginal symptoms and also evidence of gall-bladder disease are relieved of their circulatory distress by cholecystectomy, but it is not certain whether the constitutional factors favouring the development of gall-stones may not also predispose to coronary arterial disease.

But apart from this, it is important to realize how common gall-bladder disease is in the elderly; suspicions about symptoms arising in middle age are therefore likely to be well founded, and the means for the relief of the symptoms must be considered. For there is no doubt that the morbidity and mortality following cholecystectomy will be correspondingly reduced in proportion as the patients are still robust and their liver function is unimpaired.

THE CAUSES OF DEATH IN RHEUMATOID ARTHRITIS.

It is obvious on looking at the unfortunate subject of severe or widespread rheumatoid arthritis that he is suffering from a systemic disease. Certain other systemic disturbances have been observed even to cause some improvement in the joints; such a disturbance is jaundice. But death is seldom due to the disease itself, in spite of its long duration and frequently crippling nature. E. F. Rosenberg, A. H. Baggenstoss and P. S. Hench, in investigating the causes of death in rheumatoid arthritis, could only find thirty cases of this disease in which autopsy had been performed out of all the thousands treated at the Mayo Clinic in 25 years.¹ The criterion which they accept for a diagnosis of rheumatoid arthritis was the demonstration of a chronic progressive course for months or years, during which some degree of articular crippling had developed, so that even though no evidences of activity were found, joint changes were still detectable. With this condition were associated well-marked systemic disturbances, as evidenced by loss of weight, secondary anaemia and increased blood sedimentation rate. In nearly every case the radiological findings were characteristic, including swelling of soft tissues, epiphyseal atrophy, narrowing of articular spaces and some degree of destruction of cartilage. In only two cases of the thirty was there a history of antecedent rheumatic fever, and the authors emphasize that their cases were not examples of the progressive polyarthritis which is said sometimes to follow rheumatic fever. In 28 out of the 31 cases it may be accepted that no manifestations of acute rheumatic nature were recorded. The manifestations are meant to include not only the acute febrile disease, but the accepted equivalents such as chorea, the so-called "growing pains" or *erythema nodosum*.

¹ *Annals of Internal Medicine*, June, 1944.

The majority of the patients were in the third to sixth decades of life. It is curious that of the 30 patients, 17 were men and 13 women, which does not conform to the usual predominantly female sex distribution, but it is pointed out that in the Mayo Clinic twice as many necropsies are performed on men as on women.

The cause of death is given as cardiac in nine cases, renal in three cases, pulmonary in eleven cases, intestinal in two cases and miscellaneous in five. The most interesting result of this inquiry is the unexpectedly high incidence of rheumatic heart disease, which was found in sixteen out of thirty patients. In seven cases it caused death, and in a number of others it was of serious degree. The macroscopic lesions include valvular stenosis, pericarditis, thickening and shortening of the valves and adnexal structures; the microscopic changes include typical Aschoff bodies, proliferating histiocytes, fibrinous pericarditis and various inflammatory phenomena in the endocardium. These must be accepted as rheumatic in nature. The question arises regarding the explanation of their presence in the subjects who, though suffering from a systemic disease affecting the joints, had not in most cases given any inkling that a rheumatic history had a cardiac significance. The association may be merely coincidental, but, although it is possible that the coexistence of cardiac disease would more certainly bring these patients into hospital, the writers think another reason must be sought. Then, the question arises whether the cardiac lesions were truly due to a recognized cardiac rheumatism, or whether they might be produced by whatever causes bring about *arthritis deformans*. This may be, though perhaps true differentiation has never yet been made, but the authors are confident that pathologists would agree in blaming these lesions on the familiar true rheumatic cause. Lastly, there is the question of some true, if vaguely determined, relation between rheumatic fever and rheumatoid arthritis. The existence of such a relationship is rather favoured by these and other authorities, in spite of the widely held belief that as a rule rheumatic fever does not cause permanent affection of joints, and rheumatoid arthritis does not affect the heart. But even if we admit that carditis is not always recognized during life, it is very difficult to explain why there is such a wide disparity between this pathological experience and the usual clinical findings. Other writers have also reported similar findings, and the subject is worthy of fuller study. While the cardiac deaths did not constitute the largest fraction of the series, they are possibly the most important, and perhaps it might be of interest if more attention were given to the possible existence of cardiac disease in the subjects of rheumatoid arthritis, so that knowledge would grow. In any case, as these writers point out, rheumatoid arthritis is not just a disease of joints.

PENETRATING WOUNDS OF THE CHEST.

GREAT interest has been taken in the methods of handling penetrating wounds of the chest, as unfortunately war gives opportunities for such studies. Though previous great advances made in thoracic surgery have been responsible for standardizing the most important procedures, the war experiences have established the thoracic surgeon more firmly and have resulted in the drawing of a very clear line between which patients can be properly treated in forward areas and which must be sent back to base.

W. F. Nicholson and J. C. Scadding have just published a review of 291 cases in the Middle East.¹ These cases fall into three groups, those received and treated at a base hospital seven to fourteen or more days after being wounded, those received within forty-eight hours in a hospital working as a casualty clearing station, and those treated at an advanced general hospital within two or three days. The experiences gained under these different conditions have enabled the writers to form an opinion about the most suitable place for a surgical chest team in

mobile warfare. This war, with its extraordinarily varied conditions on different fronts, has emphasized the need for extreme flexibility both in organization and in ideas about such matters. No rule can be surely laid down that will hold good under all conditions. It is not surprising that the general policy in the Egyptian and Tripolitanian campaigns was to reduce intervention in forward areas to bare essentials, that is, to aspirating any hemothorax large enough to cause embarrassment, and to closing sucking wounds. These measures make it possible to evacuate chest casualties with reasonable safety. Nicholson and Scadding see no advantage in keeping sick patients longer in forward areas, though C. W. B. Littlejohn in his Middle East series found that they could be retained for seven to ten days.¹ Nicholson and Scadding found that the most favourable location for the work of a surgical chest team was at a forward base hospital, to which patients were evacuated as soon as possible. In the forward areas they found that little more than the stated essentials could be done: visceral surgery was distinctly limited, though occasionally necessary, but trimming of damaged bone and cleaning up of any debris in the wound was desirable.

They deprecate too firm a closure of the sucking chest wound as being apt to cause tissue damage and to be followed by cellulitis. The method they recommend is firm suturing of the deeper layers with loose closure of skin over a paraffin pack. Littlejohn also condemned the use of unyielding encircling sutures, but pointed out that packing alone was insufficient.

The most troublesome missiles were shell, bomb and mine fragments, but most thoracic-abdominal wounds were due to bullets, probably because other wounds of this type were rapidly fatal. Sulphanilamide was given as a routine measure, and owing to difficulties in regular dosage a twelve-hour routine was successfully adopted in the convoys. The prevalence of staphylococcal infections indicates that sulphathiazole might be even more effective. In over half the cases hemothorax was present. It was found after a time that the simpler the method the better, and that aspiration alone without air replacement, if done early, was sufficient. The danger of repeated bleeding following early aspiration proved to be a bogey. Even manometry was found not to be really necessary, for the patients' sensations were reliable. A feeling of "tightness" indicated that the safe level of pleural pressure was reached, and if it was thought desirable to remove more fluid some 50 to 100 cubic centimetres of air were introduced and the aspiration was continued. With a large hemothorax the pressure was usually high and a large amount of blood could be removed without risk or discomfort. It will be remembered that Littlejohn also advised that aspiration should be performed as soon as practicable. In 56 out of 79 cases aspiration was performed before evacuation. In one-third of the cases of hemothorax infection occurred. Drainage was usually necessary, though occasionally repeated aspiration and chemotherapy scored a success. It is interesting to note that very few patients who had had a hemothorax were completely free from pain or dyspnoea on exertion within three to six months.

Coagulation of the effused blood within the chest is always an awkward business. In Nicholson and Scadding's series this complication occurred in 6%. Infection was naturally rather common. They conclude that, while a small clot may be left, the sooner a large one is removed the better. Other matters such as foreign bodies and pneumonic complications are dealt with also, but those quoted above are the most important, for they have an important bearing on civil surgical practice. Any doctor in an isolated area might have to treat a perforating wound in the chest, with or without hemothorax, and the experiences of war surgery should be helpful to him, reinforcing as they do the belief of the pre-war period. Though the gross mortality was not high, 6.5%, these are often dangerous injuries and constitute a genuine emergency.

¹ *The Lancet*, March 4, 1944.

² *The Australian and New Zealand Journal of Surgery*, Volume XI, 1942, page 147.

Abstracts from Medical Literature.

PÆDIATRICS.

Electrocardiographic Variations in Acute Glomerulonephritis.

RACHEL ASH, MITCHELL RUBIN AND MILTON RAPOPORT (*American Journal of Diseases of Children*, February, 1944) have analysed the variations in serial electrocardiograms obtained from fifty children ill with a first attack of acute glomerulonephritis. Abnormalities were disclosed in 72% of the group. Abnormal variations were present in the tracings of 86% of the children with clinical signs of heart failure and in 57% of those with negative or questionable cardiac findings. The incidence of clinically recognizable heart disease and of electrocardiographic variations was greater among the patients in whom the blood pressure was high. At all levels of blood pressure, abnormalities in the electrocardiogram were noted more frequently than clinical evidence of cardiac involvement. The most striking changes were observed in the T wave, consisting chiefly of flattening and inversion in one or more leads, although a transient increased amplitude of the T wave was also occasionally observed. Inversion of the T wave occurred late in the cycle and was not infrequently preceded, especially in leads 1 and 2, by a slightly depressed, upward bowed ST segment. Transient inversion of the T wave occurred as frequently in lead 3 as in lead 1. The incidence of heart failure, however, was greater in association with inversion of the T wave in lead 1 than in association with inversion of this wave in lead 3. In some instances isolated transient inversion of the T wave in lead 3 may have been related to elevation of the diaphragm and change in position of the heart.

Food Allergy: Deallergization with Propeptans.

E. URBACH (*Archives of Pediatrics*, April, 1944) discusses the management of nutritive allergies by means of the administration of propeptans. In earlier work he had shown that in cases of specific food protein allergy only the specific protein derivatives prepared in the manner which he describes, administered by mouth, had a skepto-phylactic effect and consequently would produce permanent deallergization. He had also shown that these preparations could be used for diagnostic identification of the allergens. The preparations used are derived from the individual proteins by digestion with hydrochloric acid, pepsin and trypsin. They contain chiefly proteoses, but also peptones, simple peptides and amino acids. The author describes in detail the methods of administering the propeptans (a) to identify the responsible food and (b) to carry out the deallergization. He states that in some cases it takes longer than in others to achieve permanent deallergization; the average period of treatment is three weeks. When failure occurs, it may not be due to the method itself. In

the first place, the condition may not be one of food allergy, and this should be carefully determined. In the second place, the food sensitivity need not relate to proteins; propeptans are obviously effective only in allergies due to nutritive protein. In the third place, some patients present a combination of protein and non-protein food allergy. In the fourth place, a thorough search should be made for other factors predisposing to food allergy. In the fifth place, in some cases many times the usual dose of propeptan must be given to achieve a cure. On the other hand, in rare cases of extreme hypersensitivity to a given protein, ingestion of even one-half the dose of propeptan may elicit allergic manifestations, and in that case the initial doses must be much reduced. It should also be borne in mind that when insensitivity has only recently been achieved by propeptan therapy, it may be annulled by ingestion of large quantities of the previously allergenic food. Moreover, reallergization may take place as the result of any intercurrent infection or gastro-intestinal irritation from various causes. Finally, it is stressed that propeptan therapy must always be meticulously carried out. Complete understanding and careful attention to details are essential in propeptan therapy.

Eczema Vaccinatum.

ELIZABETH L. BROWN (*Archives of Pediatrics*, May, 1944) reports a typical case of eczema vaccinatum. *Eczema vaccinatum* is the term used to describe vaccinia superimposed upon eczema (especially of the face and scalp) or some other itching dermatosis. It consists of an acute eruption of umbilicated pustules occurring shortly after vaccination or after contact with a recently vaccinated person. The case described is that of a male infant, aged five months, who had suffered from eczema since the age of one month and who had been exposed to contact with a previously vaccinated sister. The treatment used was essentially the local application and the oral administration of sulphathiazole. The temperature returned to normal in about seven days and the lesions healed. The author states that the use of the sulphonamide drugs in this condition has been an important factor in lowering the mortality rate. The mechanism whereby the sulphonamide drugs obtain their success is not completely understood, but they may possibly act by eliminating the secondary infection. The author stresses the importance of preventing the contact of any eczematous patient with vaccinia virus, either directly or indirectly.

Complications of Infantile Eczema Caused by the Virus of Herpes Simplex.

H. A. WENNER (*American Journal of Diseases of Children*, April, 1944) states that the disturbed integument of infants and children suffering from eczema is infected frequently by bacterial "opportunists" and less often by filtrable viruses, of which the virus of vaccinia has been recognized more often than any other. He reports three cases in which the evidence appeared to implicate the virus of herpes simplex in the causation of an eruption affecting infants suffering

from eczema. One of the infants died, the other two recovered. In the first case, which proved fatal, an infectious agent in the exudate from vesicles in the skin of the patient provoked encephalitis and keratoconjunctivitis in a rabbit when material was inoculated into the scarified cornea; tissue from the brain also caused fatal encephalitis in rabbits. An infective agent recovered from the cutaneous lesions of the second patient induced keratoconjunctivitis in rabbits. An infective agent was also recovered from the cutaneous lesions of the third patient; material produced keratoconjunctivitis and encephalitis in rabbits. A number of bacteriological investigations were carried out to establish the identity of the infective agent, and the conclusion was reached that it was the virus of *herpes simplex*. The author is unable to understand why, if the patients reported on had the disease described by Kaposi in 1887, as his associates and he believed, the detection of the virus was easy, whereas other investigators had failed to detect it. He suggests several explanations. He comments on the isolation from brain tissue in the fatal case of a filtrable virus which was identical with the strain recovered from the skin of the same patient. Although the evidence indicated that the virus was in the tissue of the brain and not in the fluids bathing it, the absence of specific lesions in the central nervous system disposed of the assumption that the virus was an encephalitic agent for that patient. However, it seems that the virus of *herpes simplex* may enter the central nervous system of human beings more frequently than has previously been thought. The problem of herpetic encephalitis is still open, and it deserves close scrutiny in relation to diseases of the central nervous system in infants and young children.

ORTHOPÆDIC SURGERY.

The Solitary Bone Cyst.

S. KLEINBERG (*The Journal of Bone and Joint Surgery*, April, 1944) reports a case of solitary bone cyst of more than twenty years' duration. He considers the case of interest for the following reasons: (i) the natural progress of the lesion, uninfluenced by trauma or operation; (ii) the benign character of this type of cyst, despite the long duration; (iii) the continued existence of the cyst, which disproved the belief that such cysts may heal spontaneously; (iv) the ease with which such cystic disease may be completely eradicated; (v) the good fortune which attended the patient, since a pathological fracture would have almost certainly led to a *coxa vara* deformity and a functional disturbance in the hip and the limb. The cyst had been present in the neck of the patient's left femur from the age of about two years. Radiographs were taken at intervals over a period of about twenty years, until finally operation was undertaken and the cystic cavity was obliterated. From his observations the author concludes that when such a cyst is present, at varying periods of time the process of bone erosion may become active and weaken the bone, so that only a thin bony shell

remains, subject to fracture from a comparatively mild trauma caused by a direct blow or by muscular effort. It is evident that the best form of treatment is operation, the essentials being through scarification of the bony cast wall and the filling of the cavity with bone grafts of cancellous and cortical bone. The operation should be undertaken as soon as the diagnosis is certain. In conclusion, the author stresses the need for thorough curetting of the cavity, followed by complete filling of the cavity with bone grafts.

The Pelvi-Femoral Angle.

W. SALMORE (*The Journal of Bone and Joint Surgery*, April, 1944) states that present methods of estimating flexion deformity at the hip are not dependable. He refers to the work of Milch, who believes that the current clinical test estimates the total degree of combined hip and pelvic flexion. The use of a new angle, the pelvi-femoral angle, has been suggested; this angle has been defined as the backward opening angle formed by the axis of the femoral shaft with Nélaton's line. The author has studied the pelvi-femoral angle in 100 subjects, 52 males and 48 females. He finds that the angle is between 50° and 52° in normal adults and children. In infants prior to walking, the angle is about 58°. Height, weight, age and sex make no material difference. The normal left hip has the same angle as the normal right hip. The error caused by discrepancies in the locating of the various landmarks is less than 5°.

Transportation in Fractures of the Lower Extremities.

C. SAVINI (*The Journal of Bone and Joint Surgery*, April, 1944) describes a device for use in the transportation of patients who have sustained fractures of the lower extremities. The apparatus consists of a board, four feet long and fifteen inches wide, with two canvas straps attached to it at such a distance that one of them can be brought around the pelvis and the other around both legs of the patient and buckled. A blanket is first spread on the board, then both lower limbs of the patient are tied together, and the patient is carefully lifted *in toto* and placed on the board. The blanket is wrapped around his body, and the straps are secured. The author states that the device has the following advantages over the Thomas splint: (i) the Thomas splint is not always harmless when applied by a layman; (ii) the board does not require any handling of the injured leg, so that the few movements necessary in the application of the Thomas splint are avoided; (iii) the board does not interfere with radiographic examination; (iv) the board is simpler and more rapidly applied.

Fibular Substitution for Tibial Defects.

A. G. DAVIS (*The Journal of Bone and Joint Surgery*, April, 1944) presents six cases in which he employed a one-step substitution or reinforcement of the defective tibia with the fibula, with or without the addition of a sliding or inlay graft. He states that the result is a fusion between the fibula, the remains of the tibial fragments and the interposed graft.

All the elements are fused into a single weight-bearing column. Two of his patients were children and four were adults; each presented a problem involving the alternative of amputation or bone-grafting by other than ordinary methods. In two cases the lesion was osteomyelitis, in two the trouble was caused by infected wounds, in one typical pseudarthrosis followed fracture (the patient was a child), and in one pseudarthrosis followed a plated compound fracture (the patient was an adult). In all cases union was obtained; in one, refracture occurred accidentally after the patient had walked for several months without support. The author states that in carefully selected cases of infection associated with non-union, when medial draining sinuses are present, the infected area can be completely avoided, and union can be secured in spite of considerable bone defect. Under the protection of the sulphonamides or penicillin, this operative procedure can be executed without hazard to life. In spite of the use of sulphonamides and careful pressure dressings, the last two cases were complicated by prolonged drainage of serous type. The author thinks that insufficient attention was paid to the unsound and scarred condition of the skin overlying the antero-lateral surface of the tibia, and that a skin plastic operation should have been performed before the bone surgery was attempted. He has the impression that the combination of metal screws and sulphonamides, together with pre-existing low-grade infection, led to the formation of the sinuses. Prompt healing followed the removal of the metal and surrounding granuloma. The author has now reverted to the use of vitallium screws. He believes that the introduction of chemotherapy has eliminated the extraordinary risk that would attach to such radical surgery.

Dermatome Hypalgnesia.

J. JAY KEEGAN (*The Journal of Bone and Joint Surgery*, April, 1944) discusses dermatome hypalgnesia. He states that herniated lumbar intervertebral disks usually compress single nerve roots; the lesion is associated with dermatome hypalgnesia in the lower limb, which is accurately diagnostic of its site. The nerve root most commonly compressed by a herniated intervertebral disk is the first sacral nerve root. Recognition of the syndrome of lesions of the first sacral nerve root, with its characteristic dermatome hypalgnesia and loss of the ankle jerk, rules out any extraspinal abnormality as a possible cause; this nerve root is entirely intraspinal up to its exit through the first sacral foramen. Subjective and objective numbness and loss of reflexes are organic neurological signs; they cannot be explained as possibly referred from some obscure distant pathological condition. Numbness over the distribution of a single nerve root dermatome makes certain the existence of a lesion directly and discretely involving that root. The common occurrence of abnormalities of the fifth and fourth lumbar disks, leading to later herniation, should be considered more often as a possible explanation of early attacks of low-back pain; manipulative treatment should be directed to attempts to reduce this incipient herniation. Radiographs of the lumbar

part of the spine should be directed to the disk indicated by the finding of unilateral single dermatome hypalgnesia. If any other abnormality not directly related to that nerve root is disclosed in the radiographs, its presence should not be used to explain this organic neurological finding. A conservative attitude should be adopted towards surgical treatment of the herniated disk; in many early cases improvement occurs without surgical interference. However, whether operation is performed or withheld, these patients have some permanent disability which requires protection of the back. The spine fusion operation is not often indicated. Deliberate section of a nerve root is sometimes warranted, and may be effective in relieving persistent single nerve root pain after an operation for herniated disk. The nerve is identified by its dermatome hypalgnesia. The author presents a new dermatome chart of the lower extremity, based upon hypalgnesia from proved single nerve root loss. He points out that his findings are in disagreement with the common dictum that loss of a single nerve root produces no loss of sensation.

Discrepancy in Length of the Limbs following Tuberculosis of the Hip in Children.

G. G. GILL (*The Journal of Bone and Joint Surgery*, April, 1944) has studied discrepancy in length of the limbs following tuberculosis of the hip in children. His clinical material consisted of fifteen patients, nine boys and six girls; all were aged under seven years at the onset of the tuberculosis. In each case the leg was immobilized for a long period of time in a cast or brace. In ten cases both the lower femoral and the upper tibial cartilage plates were involved. In three cases the upper tibial cartilage plate alone was involved; in two, the lower femoral cartilage plate was alone involved. From radiographic appearances it is learnt that the arrest of growth follows the formation of a bony lock between the epiphysis and diaphysis at or near the central portions of the cartilage plates. The first indication is the presence of striations across the cartilage plate in its central region; this region becomes the centre of intersection of multiple radiating striations, because of continued growth from the uninvolved portions of the plate. This growth also produces characteristic changes in the outline of the involved bones. With regard to pathogenesis, the author finds no evidence that tuberculosis was the cause of the premature closure of the epiphyseal line, which in all cases occurred on the side of the diseased hip. He was impressed by the constant presence of decalcification of the bones of the affected leg, due to the long-continued inflammatory process in the hip, and to disuse consequent upon the long period of immobilization. The physical structure of the cartilage plate must be radically changed by such decalcification, and rendered more susceptible to trauma. He concludes that the discrepancy in length of the bone is due to the arrest of growth brought about by these factors, and urges the prevention of its development by the early recognition of its cause and by the institution of proper methods of treatment, some of which he outlines.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held at the Royal Prince Alfred Hospital on May 18, 1944. The meeting took the form of a series of clinical demonstrations by members of the honorary medical staff of the hospital. Part of this report was published in the issue of September 2, 1944.

The Practical Application of the Rh Factor in Obstetrics.

PROFESSOR B. T. MAYES was assisted by DR. MARY HESSELTINE. With the aid of pathological specimens, microscope slides, photographs and a "mock-up" of the treatment of an "icterus gravis" baby, he demonstrated the practical importance of the Rh factor. Professor Mayes pointed out the necessity for finding the mother with "Rh-negative" blood (15% of the random population), in view of the possibility of transfusion with "Rh-positive" blood (85% of the population). Failure to discover her might result in the hitherto inexplicable reaction. This was most likely to occur when blood transfusion had to be repeated. Professor Mayes then stressed the necessity for giving only "Rh-negative" blood by transfusion to a baby suffering from *icterus gravis* or from hemolytic anemia. He said that the reason was that the baby's blood contained anti-Rh agglutinin received from the mother's serum via the placenta. Finally Professor Mayes spoke of the present difficulty in investigating cases of hemolytic disease of the newborn and in preparing a panel of mothers with "Rh-negative" blood, on account of the small available supply of testing serum. This serum was found in the blood of the mother with "Rh-negative" blood whose infant suffered from hemolytic disease of the newborn.

Fractured Pelvis followed by Extensive Abnormalities in the Urinary Tract.

DR. M. S. S. EARLAM showed a series of skiagrams of a patient who consequent on a fractured pelvis sustained a ruptured bladder and ruptured urethra, and subsequently developed urethral stricture, bilateral renal calculi, right perinephric abscess and an acute surgical condition of the left kidney due to calculus impaction. This case will be reported in detail in a subsequent issue of THE MEDICAL JOURNAL OF AUSTRALIA.

Congenital Abnormalities of the Urinary Tract Requiring Surgical Treatment.

Dr. Earlam also showed a series of skiagrams illustrating congenital lesions of the urinary tract, of which several had required surgical interference.

Calculus in Ectopic Kidney.

The patient was a male, aged fifty-one years, who had complained of almost constant pain in the left iliac fossa, with acute exacerbations brought on as a rule by exercise, for two years. There had been no urinary symptoms. The urine had contained red blood cells, but there had been no other abnormal clinical findings. In the plain skiagram of his urinary tract there was a shadow on the left side in front of the first sacral vertebra, while an excretion urogram revealed a rotated right kidney. The lower quarter of an apparently normal left ureter could be seen, but the rest of the left ureter had not filled and no "Perabrodil" could be seen in the left kidney area. A retrograde pyelogram showed that the shadow referred to was a calculus in the uppermost calyx of an ectopic left kidney, which was lying in front of the sacrum.

On being told that nothing short of surgical treatment would suffice to cure his pain, the patient requested operation. Transperitoneal nephrectomy was carried out through a mid-line subumbilical incision, and convalescence was uneventful.

Accessory Ureter Opening Externally into Vestibule.

The patient, a girl, aged seventeen years, had had continuous dribbling of urine all her life, but also passed urine normally, at normal intervals and with normal control. On examination, the orifice of a ureter was found to be present just behind and to the right of the external urinary meatus, emitting urine in periodic spurts. Two unsuccessful attempts were made to introduce a ureteric catheter into it. A cystoscopic examination revealed two normal ureteral

orifices, and bilateral retrograde pyelography revealed no abnormality. An excretion urogram, however, revealed an extra calyx that did not appear in the retrograde pyelogram, in the upper pole of the right kidney, and presumably communicating with the accessory ureter that opened externally.

At operation, two right ureters were found. There was no separate blood supply to the upper pole of the right kidney, so it was considered advisable to ligate the upper ureter, rather than resect the upper pole of the right kidney. Convalescence was uneventful and the incontinence was cured.

Horseshoe Kidney with Left Infected Calculus Hydronephrosis.

The patient, a female, aged twenty-three years, complained of periodic left lumbar pain of seven months' duration. There were no other symptoms. The urine contained pus and was heavily infected with *Bacillus coli communis*. A plain skiagram revealed a large staghorn calculus, which appeared almost certainly from its position and shape to be in the pelvis and calyces of the left half of a horseshoe kidney. Excretion pyelography confirmed the diagnosis of horseshoe kidney. The pelvis and calyces in the right half were otherwise normal, while in those on the left side advanced hydronephrosis was apparent. Dr. Earlam said that removal of the left half of the horseshoe kidney was to be carried out.¹

Advanced Hydronephrosis in a Congenital Solitary Kidney.

The patient, a female, aged twenty-six years, when first examined had complained of intermittent right lumbar pain, of scalding on micturition, and of anorexia and vomiting of five weeks' duration. She looked ill, and her urine was loaded with pus and heavily infected with *Bacillus coli communis*. A skiagram revealed no abnormality, and a retrograde right pyelogram revealed two grossly dilated calyces suggesting advanced generalized hydronephrosis. After the pyelographic examination anuria developed, together with a large, tender swelling in the right flank. A ureteric catheter was then passed to the right kidney and left in position. This drained copiously, and steady improvement in her general condition took place. However, she passed no urine naturally. After eight days the ureteric catheter was removed, and after this she had no further trouble. On two occasions it was impossible to pass a catheter more than three inches up the left ureter. The excretion urogram revealed advanced hydronephrosis on the right side, with no evidence of kidney tissue on the left. The blood-urea level was 48 milligrammes per centum, and the patient was unable to secrete urea in her urine in greater concentrations than 1.05%. With no treatment but an increased intake of fluids, her urinary infection cleared up completely, and at the time of the meeting, six years later, she was a member of the Women's Australian Auxiliary Air Force.

Giant Calculus in the Right Half of a Horseshoe Kidney.

The patient, a male, aged fifty-six years, was symptomless. Pyuria had been found on routine examination. A stony, hard mass was palpable in the right hypochondrium, and X-ray examination and pyelography showed this to be an enormous calculus in the right half of a horseshoe kidney. As the condition was symptomless, operation was not considered justified in view of the patient's age.

Congenital Solitary Kidney.

Dr. Earlam finally showed an excretion urogram of a male patient, aged fifty-eight years, with a congenital solitary right kidney. The right kidney was extremely large, and there was no kidney shadow on the left side. At cystoscopy the left half of the trigone was found to be absent, and no left ureteral orifices could be found.

(To be continued.)

NOTICE.

THE General Secretary of the Federal Council of the British Medical Association in Australia has announced that the following medical practitioners have been released from full-time duty with His Majesty's Forces and have resumed civil practice as from the dates mentioned:

¹ This has since been carried out extraperitoneally through a left lumbar incision, convalescence being uneventful.

- Dr. G. Archbold, Bridge Street, West Tamworth, New South Wales (March 4, 1944).
 Dr. D. C. Trainor, 135, Macquarie Street, Sydney (March 1, 1944).
 Dr. C. de Monchaux, 135, Macquarie Street, Sydney (June 1, 1944).
 Dr. R. D. Davey, 37, George's River Road, Croydon Park, New South Wales (September 1, 1944).
 Dr. J. H. Halliday, 143 Macquarie Street, Sydney (May 3, 1944).
 Dr. J. C. Belisario, 143, Macquarie Street, Sydney (August 28, 1944).

Public Health.

COMMONWEALTH PARLIAMENTARY JOINT COMMITTEE ON SOCIAL SECURITY: INTERIM REPORT OF THE MEDICAL PLANNING COMMITTEE.

THE following is the report of the Medical Planning Committee of the Parliamentary Joint Committee on Social Security which was mentioned in the account of the meeting of the Federal Council of the British Medical Association in Australia published in the issue of July 15, 1944.

1. PERSONNEL OF COMMITTEE.

Mr. H. C. Barnard, M.P. (Chairman)	Representing the Joint Committee on Social Security.
Senator W. J. Cooper, M.B.E.	
Hon. Sir F. H. Stewart, M.P.	
Sir Henry S. Newland, C.B.E., D.S.O.	
Sir Charles B. Blackburn, O.B.E.	Representing the British Medical Association in Australia.
Dr. W. F. Simmons	
Dr. F. McCallum	Representing the Commonwealth Director-General of Health.
Dr. Alan B. Lilley	Representing the Social Security, Medical Survey Committee.
Sir Raphael Cilento	

2. Also in attendance were Dr. John G. Hunter, General Secretary, British Medical Association in Australia, and Mr. Roy Rowe, Research Officer, Joint Committee on Social Security and Secretary, Medical Planning Committee.

3. Having considered the matters referred to it by the Social Security, Health Services Conference at Canberra on the 9th December, 1943, the Medical Planning Committee submits an Interim Report on the general principles of a Comprehensive Health Service in three sections, viz.

- I. Public Health,
- II. Hospital and Ancillary Services, and Research, and
- III. Medical Services.

A COMPREHENSIVE HEALTH SERVICE.

SECTION I.—PUBLIC HEALTH.

4. In its Sixth Interim Report, the Social Security Committee¹ reviewed at some length the concept of "positive health". The recommendations of that report, for a Comprehensive Health Scheme, envisaged the integration of the practice of preventive and of curative medicine, directed to the achievement of "positive health", for the individual as for the community.

5. As a result of further deliberations, the necessity of that integration of practice is again emphasized. As the Federal Council of the British Medical Association in Australia has stated: "Medicine . . . now approaches the problems of health and disease from the standpoint of applied biology, concentrating not only on the causes and treatment of disease in its individual manifestations but on the promotion and maintenance of positive health. It views the individual not as a vehicle of disease processes but as a living organism adapting itself to its environment."

6. There are three essential principles which emerge from all the evidence taken, from the reports and projects studied by us, from our deliberations and from the consultations with representatives of the practising medical profession and of the health services, military and civil.

7. These three principles may be expressed in clear terms:

- (a) As, in our present need, the growing child is our most important asset, the foremost consideration in any plan for social security should be the adoption of measures to encourage the birth of an increasing number of healthy children and to ensure the mental and physical health of the growing child.
- (b) Whatever we may do administratively, and however large the sums we spend officially, the environmental and economic status of the individual is, in the last analysis, the determinant factor in health.
- (c) The successful introduction of any comprehensive scheme for health services implies inevitably complete cooperation between the Commonwealth and the States, the medical profession, and the general public.

8. These three essential principles constitute the basis of the considerations here set forth. These principles have determined the recommendations made under each relevant head.

9. This section of the report deals with the following items of public health in more particular detail: appended (at paragraphs 140-155) is a summary of essential aspects embodied in this section:

¹ Refers to Commonwealth Parliamentary Joint Committee on Social Security.

Health Powers and Commonwealth-States cooperation.
 Health Aspects of the Population Problem.
 Economic Conditions and Public Health.
 Medical Survey of the Population.
 Maternal Welfare.
 Infant Welfare.
 The Pre-School Child.
 School Medical Services.
 National Fitness.
 Nutrition.
 Industrial Hygiene.
 Infectious Diseases.
 Tuberculosis.
 Venereal Diseases.
 Mental Hygiene.
 Tropical Medicine and Hygiene.
 The Toll of Accidents.
 Administration.
 Uniform Legislation for Food, Drugs and Poisons.
 Health Education.

(1) Health Powers and Commonwealth-States Cooperation.

10. In the Sixth Interim Report the Social Security Committee noted the limitation of Commonwealth powers under the Constitution to "quarantine", but recorded the far wider fields of activity in public health of Commonwealth agencies, expanded by mutual agreement with the States.

11. It was obviously the view of the founders of the Commonwealth over 40 years ago that the sole province of the proposed Commonwealth Government should be that of "quarantine", that is, the defence of the whole area against invasion by infection from abroad.

12. The care of the health of the public was envisaged as a local responsibility of the individual self-governing States, as a matter of domestic welfare. In 1900, both Commonwealth and States regarded "health as comprising (a) the sanitation of environment, and (b) the control thereby of infectious and contagious or epidemic diseases". Even in these fields, when in 1900 plague assailed the quarantine barrier, the common danger found no Federal provisions to secure coordinated action between States. Later came the rapid growth of medical knowledge and "the new public health" which in turn has now given place to the newer concept of "positive health". At the outset, therefore, the Commonwealth was deprived inadvertently of important powers for coordination and cooperative action among the States.

13. From time to time in seeking uniformity of standards or of action, and on occasions of public health emergency, and in respect of progressive research or other activities of national rather than local significance, the effects of this initial defect have been very apparent.

14. The decisions of the Convention at Canberra in November, 1942, included as one desirable extension of Commonwealth legislative power the clause "National health in cooperation with the States".

15. Following reference to the State legislatures, the constitutional position remains as yet unchanged. No competent legal opinion has been given whether the phrase "in cooperation with the States" do not also, in effect, leave the constitutional position unchanged, since legislative power in respect of public health will not then be exclusively vested in the Commonwealth as apparently necessary under the Constitution itself.

16. The Conference of Commonwealth and State Ministers of Health which met in Canberra in 1943 could only agree:

"That the Commonwealth lay down the broad principles of a health service and general hospital standards, and subject to acceptance of these principles and standards, will finance the States under a system of grants-in-aid, in order that uniformity in health services and hospital standards may be established generally throughout the whole Commonwealth."

17. In these circumstances, it is thus quite impossible at the present time to define clearly the administrative picture of Commonwealth and States relationship in matters of public health.

18. The Social Security Committee has, however, repeatedly emphasized that, wherever lies the constitutional power, public health can only advance through the cooperative efforts of the Commonwealth and State authorities, the practising medical profession, and the general public.

19. We would, however, reiterate our belief, as expressed in three especially significant sub-paragraphs of the Sixth Interim Report of the Social Security Committee, that

"21. The deficiencies in the public health provision may be summarized as being

- (a) the restricted powers of the Commonwealth in respect of health;
- (b) a lack of uniformity in the legislation for health and the organization of health (including hospital) services in the six self-governing States;
- (c) a needless separation of the health problem into unrelated parts under separate controls by failure to recognize their unity in essence;

(11) Health Aspects of the Population Problem.

20. The Social Security Committee in its earlier enquiries into the basic principles of Social Security was told in evidence by an expert economist that "There is no population policy in Australia", the need for which he stressed, as well as "the importance of considering all security measures from the angle of their effects on the quantity and quality of the population, and of framing all measures in fact with the most careful regard for their possible effect on the future quantity and quality of population".

21. Much of the evidence subsequently heard from medical men has proved the truth of this: personal and community health is very intimately related to every aspect of the population problem.

22. We have been concerned, as is every intelligent Australian, with all the implications of the modern phenomena of a falling birth rate and a fast ageing population. We have no ready-made solution for the manifold problems inherent in these phenomena.

23. The Social Security Committee has, however, heard much evidence which clearly indicates certain steps which Governments, with the support of the people, must take

- (a) to foster by every means early marriage and the natural development of family life, for it is realized that economic circumstances play an undoubted part in delaying marriage and in the refusal of parenthood. That economic factor should, however, be fully considered in relation, for example, to marriage loans, child endowment, and housing;

- (b) to foster means for making maternity safer, and less difficult from the social and domestic side;
- (c) to ensure child care, and opportunity of development, education and employment, so that no parent can claim doubts for his child's future.

24. The Social Security Committee has taken no direct evidence on the question of Birth Control. We feel, however, that we cannot ignore this feature of the population problem because it is controversial. We feel that the decision as to the practice of birth control must be decided by Australian married folk as an individual responsibility according to the dictates of their conscience. We deprecate, however, any ready availability of contraceptives. The National Security (Venereal Disease and Contraceptives) Regulations which prohibit the advertising of contraceptives have achieved the elimination of an objectionable feature. We urge that similar legislation should, if possible, be secured, possibly by agreement between the States, to ensure a maintenance of this prohibition of advertisement when the National Security Act is no longer operative.

25. Similarly, no special evidence was taken on the question of abortion which, over recent years, either self-induced or criminally procured, has contributed a quota of deaths and of grave illnesses to an increasing number of Australian women. We have it on the authority of the National Health and Medical Research Council that economic considerations play a large part but that other factors or motives operate. In present circumstances, we feel that this problem should continue to be very closely watched by health and hospital authorities so that those other motives and factors might be located and if possible corrected.

26. We subscribe to the ideal that "Australia's best immigrants are its babies". We recognize, however, that in post-war planning, immigration must play an integral part in the development of the nation. We commend a thoughtful report on "Medical Aspects of Migration", included in the report of the tenth session of the National Health and Medical Research Council. That report advocated an intelligent application of medical principles in maintaining a certain degree of restrictive control on immigration into Australia, and we agree that whatever may be the background of future migration, the health and medical aspects should be regarded as a fundamental part of the administrative machinery.

27. In particular, we are impressed with the potentialities of child migration, which was the vision of Kingsley Fairbridge, founder of the great system of child migration named in his honour; he saw "little children shedding the bondage of bitter circumstances, and stretching their legs and minds amid the thousand interests of the farm . . . the waste of unneeded humanity converted to the husbandry of unpeopled acres".

28. The policy and ideal of a White Australia cannot be ignored in relation to our population problems of the post-war era. We believe that Sir John Latham well expressed Australian feeling when he wrote in a foreword to "The Peopling of Australia" that:

"It is firmly and, in my opinion, reasonably believed by Australians that Australia can do most to secure what the Greeks would have called 'a good life' for her people by maintaining the present social composition of the community. This is not a selfish ideal for it is, we believe, as a free white democracy that Australia can make her best contribution to the peace and well-being of the world as a whole."

29. We are impressed with the need for continued scientific observation and record of Australian population movements as the basis of all social studies. We have in another section of this report (see paragraph 44) advocated a development of the statistical services for the betterment of demographic and vital statistics. We have been interested in the Department of Sociological Medicine initiated and maintained by the N.S.W. Branch of the British Medical Association. This activity recognizes that the medical profession and the health services are very vitally concerned in population problems and we urge close collaboration in this field between doctors, economists and statisticians whether they work in the Government Services of Commonwealth or States, or in the Universities, or in private practice or voluntary agencies.

(III) Economic Conditions and Public Health.

30. We have been impressed by the difficulty of obtaining adequate data concerning the relationship of economic conditions and health in Australia. There are English and Scottish records which very clearly show gross differences in physical development between children of different social classes, and between distressed and prosperous areas. Sir John Orr has clearly shown the lower consumption of the important "protective" foodstuffs by people on the lower income levels. Infantile mortality rates and tuberculosis incidence have been correlated with economic status.

31. In Australia it is very difficult to show such significant and constant variations. The Commonwealth Advisory Council on Nutrition found that an undetermined proportion of the children in Australia did not get enough to eat because of the economic conditions of the family; but ignorance of dietary values caused malnutrition amongst children at every economic level. Infantile mortality rates do not vary constantly between towns or between suburbs according to the economic level of the inhabitants. With regard to tuberculosis, evidence was heard of the incidence of infection amongst such selected groups as nurses and medical students.

32. In no way do we underestimate the necessity of maintaining high standards of living to secure individual and community health. We recognize only too well how complex are the factors involved in practically every phase of public health. We are agreed that for the development of a full community life of health and happiness, the economic aspect and freedom from want are essential considerations. We are, however, very much in agreement with Sir William Beveridge in his pronouncement on his Plan of Social Security as "one part only of an attack upon five giant evils; upon the physical Want with which it is directly concerned, upon Disease, which often causes that want and brings many other troubles in its train, upon Ignorance which no democracy can afford among its citizens, upon the Squalor which arises mainly through haphazard distribution of industry and population, and upon the Idleness which destroys health and corrupts men, whether they are well fed or not, when they are idle". No planning for a social policy can succeed unless it aims to combat these five giant evils, in all the complexity of their manifestations and effects.

(IV) Medical Survey of the Population.

33. It has been suggested that we should advocate the compulsory annual medical examination of the whole community as a health measure.

34. The plan of periodical medical examination of the community has been much publicized in the United States of America and by such agencies as the Peckham Health Centre in England. As an ideal, or as implemented by individual or local arrangement, periodical medical examination is to be advocated as a sound measure of individual health. We agree that as a national or State scheme, however, the practical difficulties are varied and

considerable, especially if an attempt at universal compulsory enforcement were made in peace time.

35. Similar objection, on the score of practicability and acceptability, might be raised to the adoption of an individual health record in its complete form as a personal dossier of the citizen from the cradle to the grave. Little has been heard of the individual "Carnet sanitaire" advocated in certain Continental countries before the war.

36. Compulsory medical examination before marriage, another theoretical ideal, has been adopted in certain American States; reports have varied widely in praising and condemning the results of the legislation. It is unlikely that Australia is yet ready for the adoption of such a measure.

37. We feel, however, that every facility should be afforded the individual who desires to avail himself of the opportunity of a regular medical inspection, or to undergo pre-marital examination and tests. In the development of the community health centre, such provision might be established as a service to citizens and to educate the community in the value of such examinations. It is emphasized that any such examination should be made with a background of health and physical fitness rather than of disease; the examination should be that of the athlete rather than of the invalid.

38. One related aspect concerns the maintenance of health of those in the higher age groups who in our aging population will increasingly be asked to carry on responsible tasks beyond what is now accepted as the retiring age. As Sir William Beveridge has said: "A people aging in years need not be old in spirit". Regular medical examination will undoubtedly do much to bring to notice and attention the "risks of middle age"—those heart and arterial conditions, early arthritis, malignant or degenerative changes which may mean a shortened or a crippled life over years which could be fully employed for the good of the citizen and of society.

39. In the more specialized fields of health surveys, the Social Security Committee has heard evidence which has stressed especially the importance of regular school medical examinations, tuberculosis surveys by the newer technique of mass radiography, and such health surveys as that carried out amongst children in the Adelaide Hills district. Rheumatism, gonorrhea and mental hygiene are other fields in which specialized surveys offer promise of attack against problems which affect certain quotas of the community.

40. Such surveys represent an opportunity to obtain specific inspection over a defined cross-section of the community at any given time. On the other hand, an established system of vital statistics records certain features of population movement and of happenings within a community through the periodical census, the registration of births, deaths and marriages, and the notification of infectious diseases. These vital statistics relate to statutory requirements, administered by Government Departments; other vital and social statistics of importance are collected by hospitals, friendly societies, insurance companies, and industrial organizations.

41. Such vital statistics constitute an essential part of any public health and medical plan. "Health accountancy can teach us many lessons", and only through accurate statistics is it possible to have a stocktaking of the health and welfare of the community.

42. Birth statistics in Australia are complete and accurate, but stillbirths are not legally recorded in all States. It would appear that there are social and public health advantages in the legislative requirement of notification of stillbirths and we recommend that this should be done.

43. While there has been substantial progress in recent years in the field of mortality statistics—that of the classification of causes of death—little or no advance has been made in the collection and collation of data concerning sickness. Accurate information about the prevalence, course, geographical and occupational distribution of sickness, properly classified, is essential for the development of social hygiene and preventive medicine. Without a reliable statistical basis, clinical research is seriously hampered. There is no international list of causes of morbidity as there is for mortality. Infectious diseases, notifiable under the several State Health Acts, are a special category, as all Health Departments compile and publish relatively complete statistics of notified cases of these diseases. If any social scheme, involving the recording of sicknesses, is introduced on an Australia-wide scale, expert statistical and medical opinion should be sought to initiate a code system along scientific and sound lines. Any such code should be adaptable for conversion to an international model after the war. (Prior to the war, the International Institute of Statistics and the Health Section of the League of Nations were collaborating in the preparation of such a set for international adoption.)

44. The development of the machine system of recording and analysing statistical data makes possible a fully detailed classification of statistical material. With the extension of social services in Australia large new fields for scientific investigation are likely to be opened. Opportunities will be presented such as never before existed for making statistical contact with original sources of information. We strongly urge that these opportunities be seized. For that purpose, it is further recommended that:

- (a) Definite and formal cooperation should be established between the statistical and health agencies of Commonwealth and States.
- (b) Legislation, where necessary, should be enacted to provide that such statistics as are required shall be furnished by Government Departments, friendly societies, industrial and other bodies, such as public hospitals, and by medical practitioners.
- (c) A competent medical officer with special aptitude and qualifications such as university training in statistical method, should be seconded from the Commonwealth Department of Health for service with the Commonwealth Statistician, to organize, under the direction of the Statistician, the development of morbidity statistics in Australia.

45. In the more specialized field of hospital statistics, the inquiries of the Social Security Committee have indicated that there is considerable room for improvement and uniformity in the compilation and classification of such statistics as those covering admissions, bed states, daily occupied beds, etc. Similarly, hospital case records are too often regarded as no more than a temporary clinical record; Professor F. Wood Jones, on the other hand, emphasized that "accurately kept, case records containing all facts relevant to the condition and progress of the patient, are the bricks and mortar from which the edifice of real clinical knowledge must be built". Hospital authorities and governmental agencies concerned with the administration of hospitals should make it possible that accurate case records are secured and maintained for the study which they provide for an increased knowledge of the incidence and prognosis of disability and disease throughout Australia.

(V) Maternal Welfare.

46. We have been impressed by the unanimity of opinion, in one matter, of those who have given evidence before the Social Security Committee, namely, with regard to the importance of maternal and child welfare in any comprehensive health scheme. It was inevitable that, in recording the Minutes of Evidence, the larger questions of medical and hospital services should have been more featured at some length; actually, of individual

indexed items of public health importance, references to maternal welfare and to infant welfare appear more often than to any other subject. Few phases of public health can be discussed intelligently without some reference to the essential services rendered to the mother and the child.

47. We endorse the emphasis placed on this importance of maternal care by the National Health and Medical Research Council. In separate reports over recent years this council has stated that—

"Many mothers die during childbirth because they do not receive adequate or sufficiently early treatment... obstetric emergencies often occur because the woman has not had in time proper ante-natal advice, and many emergencies could be prevented by such advice.

"It would not be right for this Council to convey the impression that even with the use of every means available at present every maternal death can be prevented. But knowledge of the underlying causes is improving all the time and everything which can be done should be done both to utilize and apply the knowledge at present available and to acquire new knowledge from experience and research.

"The employment of women in industry must be particularly safeguarded, with special provision in respect of pregnant women. A concerted programme of measures for the care of the greatest industry of all—the mothers engaged on home duties—is urgently necessary in the interests of health. The matter presents difficulties but also offers opportunities now recognizably obvious."

48. Evidence given before the Social Security Committee has emphasized that the "preventive" aspects of maternity work depend very largely upon recognition by the expectant mother of the need for her to seek early and regular ante-natal care and supervision. It has also been stressed that whilst the work of a nurse may be important in advising the expectant mother upon many aspects of personal hygiene and regulated living, ante-natal supervision is, in practice, essentially a matter for the medical attendant. A corollary is the education of the medical student, the doctor and the midwife-nurse in this important phase of midwifery practice.

49. In private medical practice, it is happily becoming a recognized custom for women to "book" their confinement ahead with their doctor upon his confirmation of their condition; they then attend at stated intervals for regular ante-natal examination and advice.

50. In hospital practice, the demand for maternity beds in a popular hospital has made it essential for the expectant mother "to book early". It is now customary for maternity hospitals to insist that "booked" cases attend once a month, and every fortnight over the last two months of pregnancy; early booking therefore ensures more effective supervision throughout the period of pregnancy.

51. Representations have been made that independent ante-natal supervision is ineffective and discontinuous when carried out at baby welfare or other clinics which are not directly associated with the maternity hospital at which the mother will be confined. In some centres however, outlying districts have been afforded a service by arranging for supervision at local clinics but in association with the hospital itself.

52. Significant figures, confirming the saving of life of mother and baby which ante-natal supervision ensures, have been recorded by a large hospital in Melbourne; during the year ended 30th June, 1941, in 2,581 cases which had attended for ante-natal care only five mothers died (or two per 1,000 cases); in 509 "emergency" cases admitted to the hospital, 12 died (or 23 per 1,000 cases).

53. We urge that in any provision for maternity hospital plans, staffing, equipment and maintenance, adequate facilities could be provided for an effective ante-natal service to every expectant mother.

54. We further recommend that every opportunity be taken for educating expectant mothers in the benefits of ante-natal care.

55. There are admittedly administrative difficulties in arranging a maternity allowance otherwise than in a lump sum. Particularly in the case of working mothers, however, there is much to be said for some such principle as that advocated in the Beveridge plan whereby the mother who is gainfully employed is paid benefit over a period of 13 weeks in addition to the usual maternity allowance; such measure ensures relief from the stress of employment and frees her for the care of herself and her baby over that all-important period which may so materially affect the course of their future lives and health.

56. There are very clear responsibilities involved in relation to maternity hospital provision and midwifery services because, as an Australian authority has said,

"Maternal mortality, and especially maternal morbidity, varies in direct proportion to the inefficiency or inadequacy of the professional care and supervision during the ante-natal and post-natal periods."

57. Our attention was drawn to a series of recommendations of the Federal Health Council in 1935, which still represents a model plan for the betterment of maternal welfare and the practice of midwifery. Certain of these recommendations have been implemented, others have been adopted in part. We commend full maintenance of these items, and the development of the other items, for an adequate service throughout Australia, as advocated by the Federal Health Council:

"(a) Establishing a model maternity centre in each capital city either by expanding existing institutions (the preferable course) or erecting new institutions. These would be centres for (i) demonstrating proper technique; (ii) post-graduate courses for doctors and nurses; and (iii) clinical research and trying new methods; and would be training schools for midwifery nurses and medical students.

In order to secure the full use of such a centre a Professor of Midwifery should be appointed at each State University whether a medical school exists or not. (It would not be essential that the person so appointed should be entitled 'Professor'). This professor would have a sufficiently attractive salary with the right of consulting practice and should be the person in charge of the activities of the model maternity centre.

(b) Establishing a consultant service of senior obstetricians wherever possible.

(c) Expanding infant welfare centres where possible to include an ante-natal clinic; or alternatively, associating the infant welfare centres with newly established ante-natal clinics in properly equipped institutions. This would probably mean in many cases, reorganization of existing centres, perhaps new buildings; where possible the ante-natal course should be given by medical practitioners.

(d) Providing maternity wards for every metropolitan hospital where such a ward is possible. It is important that the maternity wards should be staffed with a staff separate from the general staff of the general wards.

(e) Increasing the accommodation provided in convalescent and after-care homes.

(f) Subsidizing and extending the Bush Nursing and other approved organizations.

(g) Making provision for the investigation of all (so far as is possible) maternity deaths. Any such investigation should be made confidentially and discreetly by a permanent medical officer of the Health Department of the State concerned.

(h) A system of notification to the Registrar-General of deaths from (i) abortion; (ii) stillbirth; (iii) any cause within three months after childbirth, is very desirable."

Home nursing service and home aids have a special value in the case of the housewife during the period of her confinement. This enlistment of organized aid for the purpose of assisting women with their domestic responsibilities might well be developed on a local basis analogous to the many organizations now created for patriotic purposes. We feel that this is a service which women themselves should inaugurate and organize, but that Governments should give generous support in providing such funds as are necessary to stabilize any responsible organization on an acceptable basis.

(VI) Infant Welfare.

58. A wide range of organizations, official and voluntary, are responsible in each State for the care of the infant and child. Infant welfare activities are based on the consideration "that the health of the infant depends primarily upon the efficiency of the mother, and that, as the majority of babies are born healthy, mothers should be taught how to keep them well and how to prevent unnecessary sickness by employing sound methods of infant management". The basic function of the infant welfare centre (or baby clinic) is the care of the child through the education of the mother in mothercraft.

59. The infant welfare centre is concerned with the baby during the first year of its life. The development of these clinics over the past thirty years has coincided with one of the greatest achievements of modern times—the saving of child life during that first year which is statistically registered by the infant mortality rate (deaths of infants under one year of age per 1,000 live births). The experience of Victoria may be taken as typical of Australia—in every 1,000 children born, during the years 1900–04, Victoria lost 98 infants each year before their first birthday; 74 infants during the years 1910–14, 65 during the years 1920–24, and 43 each year during the years 1930–34. In 1940, the deaths per 1,000 births numbered 39.

60. In that decline, there has been a significant variation in the annual causes of deaths per 1,000 births. Over the years, the mortality of infants from diarrhoeal diseases has been reduced by 93%; the main respiratory diseases by 38%, and the infectious diseases by 72%. Variations in classification in earlier years of the pre-natal causes of death prevent an exact comparison, but on detailed analysis of causes of death under this heading, no appreciable decline is evident (that is, in deaths recorded as due to such causes as malformations, congenital debility and prematurity, etc.).

61. In modern life, the infant welfare movement, mothercraft, and (in those centres where it has been developed) fathercraft, constitute an essential social service. We commend what has been achieved, and believe that with the integration of the movement in the community health centres recommended by this Medical Planning Committee (paragraph 242), even greater achievement may be possible.

(VII) The Pre-School Child.

62. Health authorities have pointed out for more than twenty years that little has been done to bridge the gap which exists between the health supervision given at infant welfare centres and that provided by the School Medical Services.

63. As Dame Janet Campbell pointed out in her report in 1929 on "Maternal and Child Welfare in Australia", in Australia, as in England, during the age period of 2 to 5 years "the child is only too often subject to no effective health supervision at all, yet it is a time when good care and watchfulness are needed to prevent or deal with infectious or constitutional disease which, if neglected, may lead to considerable physical disability, and when special attention is called for in regard to matters of dietary, hygiene and training."

64. There have been for many years kindergarten, day nursery and Montessori schools in Australia. The Committee has watched with interest and its members have themselves seen the results of the coordination of the kindergarten and day-nursery movements in bringing the health aspects of their work into an important place in the objectives of the Societies.

65. When the Kindergarten Unions of the several States joined in a Commonwealth-wide organization—the Australian Association for Pre-School Child Development—the Commonwealth Government erected the Lady Gowrie Child Health Centres as demonstration units in each capital city. Collaboration was arranged between the Commonwealth Department of Health and the Association to ensure a correlated study of physical and mental health, child growth and nutrition.

66. Statistics are not complete but in 1940 there were 78 free Kindergartens in Australia with an average attendance of 3,570. Training Colleges now function in all the mainland capital cities and only partly meet the demand for highly trained instructors in a system which requires a high proportion of instructors per centre. This indicates that a beginning has been made.

67. We stress the importance of this work. Here again, the community health centre offers scope for development in correlation with the Kindergarten movement.

68. We commend the action of those State Health Departments which have appointed special pre-school officers to the departmental divisions of maternal and infant welfare. Under their inspiration and guidance, and in collaboration with local organizations, it would appear to be a sound line of advancement where kindergarten principles are being adopted for pre-school children who attend with their mothers at infant welfare centres and who are accommodated in the special "waiting places" provided.

69. The provision of community playgrounds is an essential service for children, especially in inner suburban and industrial areas. We believe that no health service is comprehensive which does not include an open playground accessible to every toddler and child in the community.

70. There is another aspect in relation of the home life and care of children at this age. We have already referred to the importance of some system of "home help" as part of a complete system of maternal welfare.

71. We are convinced that with the development of a system of crèches and day nurseries, and of home "minders", the lot of the mother with young children could be greatly eased. There would be a restored encouragement of family and happier home life if the mother could be assured of regular relief at home for shopping or visiting excursions, and the young married couple could be released together for an occasional evening at the pictures or a dance.

72. The Country Women's Association, with the great-hearted kindness of the outback, can arrange such help at distant homesteads. We suggest that other women's organizations in city, suburbs or rural areas might well serve their fellow-women in a work which has implications of national importance.

(VIII) School Medical Services.

73. According to the Commonwealth Year Book, during the year 1939 the average daily attendance at State schools in Australia numbered 744,706, and of these 176,136 or 23.7% were examined by school medical officers; another 45,189 children were examined by school nurses. The cost of School Medical Services is a very minor item in the Education vote (approximately between 2d. and 3d. per head of population in a total expenditure on education of between £1 15s. to £2 per head of population).

74. In New South Wales 36% of the children attending are examined under a system which provides

"In country districts the medical examination of every child at least twice during the usual period of school attendance (6-14 years). In the metropolitan area . . . the full medical examination of all children in first and sixth classes, and the review of children in other classes who have been found defective in previous years."

75. We endorse authoritative opinion that this provision should be the minimum for an effective system of school medical service.

76. The question has remained open whether the school medical service can function most efficiently under the administration of the Education or the Health Department. In four States the service is now part of the Health Department; in two States the service is still included in the Department of Education.

77. To those who advocate in modern education the trend towards a psychological basis of training, especially in the earlier years of schooling, the school medical service appears as an integral part of that training. The coordination of mind and body, the cultural achievement, the vocational guidance and ultimately the vocational training of this new education line the teacher and the doctor in a very close collaboration. Especially is this so with that quota of children who are retarded by mental or physical disability; in selection of such children and their later training, the team of doctor-psychologist-teacher must work together. The educationalist views with some misgiving what he regards as a divorce of the doctor from this team, with the administration of school medical services by the Health Department.

78. From a wider viewpoint, the school life of the child can only be regarded as one episode, however important, in his life. In the newer public health, there is a direct sequence of health guidance of the individual from birth through infancy and the pre-school years to school life and the early adolescent years of technical training and entrance to industry.

79. The Health Department is becoming more and more a coordinating centre of many activities devoted to many phases of social responsibility; in that concept the school medical service takes its natural place as part of this social responsibility within the ambit of the Health Department.

80. The Conference of Commonwealth and State Ministers for Health on 15th-16th June, 1943, adopted a resolution in the following terms:

"This Conference is of the opinion that, in order to secure continuity of record, supervision of child from birth to end of school life be a function of the Health Department in each State; and that further attention be given by school medical officers and other medical practitioners to the pre-school child through the well-organized system under the Health Department."

81. The system of community health centres and the part which the general practitioner can play in supervising the health of the school child are referred to later in this report.

82. The success of any such development will be gauged largely by the proportion of children found with some disability who are successfully treated or who receive remedial or preventive measures.

83. At present, in the exceptional circumstances which exist at Canberra, with personal follow-up by nurses, 88% of children receive treatment recommended. In the cities it is reported that there is a reasonable response by parents to notifications of remedial defects and the available facilities at hospitals and through their own doctors are utilized. In country districts the proximity of the nearest hospital is often the determining factor whether anything is done, especially in securing treatment for nose and throat conditions.

84. We recommend that where no provision now exists, all subsidized hospitals should be required, as a condition of that subsidy, to provide for the treatment of children suffering from defects notified by the school medical service and whose parents establish their inability to pay normal fees.

85. Although the provisions of child welfare and other legislation make a parent or guardian responsible for obtaining adequate medical care for a child, Western Australia is the only State which requires (under Section 517 of the Health Act) that a parent should secure medical or surgical attention for a physical defect in a child notified by a medical officer.

86. Dental supervision has become an essential part of the work of the school medical service; dental caries represent the highest total of all defects found in children (in up to and over 30% of all children examined).

87. We urge far greater attention to the problems of dental hygiene and the provision of necessary clinics, stationary and travelling, to ensure that no child is deprived of the opportunity of dental attention.

88. The rectification of visual defects is receiving increasing attention. In New South Wales there are special arrangements for obtaining spectacles at contract rates even when a child is referred by the oculist medical officer to a private oculist. A beginning has been made with the establishment of special "eyesight saving" school classes—an admirable innovation.

89. Trachoma is now a problem only of the Far West, but still engages the attention of the school medical service—local practitioners as local ophthalmic medical officers have cooperated in attending cases of what was once the scourge of country children in Australia, and in Queensland the special Ophthalmic School Hostel in Brisbane provides specialist treatment and specialised education for children sent in from the country. These are achievements of the service but Governments must recognize that such specialised service is not cheap, but pays good dividends in the prevention of blindness and of the handicap of defective vision.

90. The school medical service provides primarily for the child attending school from home. There were in Australia, however, in 1939, a total of 54,927 children under State control or supervision. At the last census (in 1933) there were enumerated 183 blind children (under the age of 14 years) and 500 deaf and dumb children. The orphan and neglected children, the under privileged, the crippled, blind and deaf and dumb children, the mentally deficient, the mentally diseased and the epileptic, all await what we can offer to minimize their handicaps and to restore them as far as possible to a happy and useful community life.

91. We are familiar with much of the work done in their fields by voluntary agencies, both religious and lay, and by State Departments. Devotion and skill of staff are too often hampered by inadequate buildings and poor equipment. We urge that Governments should look generously towards these activities. As a sum in social economics, there is clear profit in the child

who is trained to a craft or some useful employment, and so saved from the dead-end hopelessness of the invalid pension.

92. In another section of this report we refer to the mentally handicapped child. Here we would note the useful cooperation which is maintained in some States between the school medical services, the child guidance clinics, the opportunity classes and special classes for backward children. There has been a praiseworthy development in Victoria: a wartime evacuation unit, appointed to decide "billetability" of city children, has so established its usefulness that it now constitutes a permanent children's clinic for preventive psychiatry.

93. We urge that Governments should accept a very full responsibility for the under privileged child who becomes a ward of the State. Much has been accomplished and in some States the work of the Child Welfare Department, or equivalent agency, is worthy of all praise. There is, however, food for thought in a table of venereal disease statistics recently recorded in a capital city: of 28 girls detained under National Security Regulations as suffering from venereal diseases, 15 were single girls between the ages of 18 and 25, 13 were married. Of the 15 single girls, 13 were ex-wards of the State; of the 13 married women, 2 at least were ex-wards.

94. This experience does not in itself prove that the State is a bad parent, and in another State the results of "opportunity class" work, under trained State supervision, is revealing. A series of 390 children completed their schooling from these classes at the age 14 and remain under after-care supervision until they are 18. Of this 390, 281 are gainfully employed, 8 are in institutions, 29 girls are helping at home, 21 are permanent invalids or too low grade to work, and 51 remain under the Children's Welfare Department or have gone to the country. The majority of these children were of "slow mental development", the recruiting ground for the young delinquent and the prostitute.

95. In all this work, we reiterate our opinion that the growing child is the national asset most worth preserving, and that any comprehensive health plan should aim primarily at ensuring the best physical and mental development of the child.

(IX) National Fitness.

96. It is significant that, just after Munich, the National Health and Medical Research Council submitted a resolution to the Commonwealth Government through the Minister for Health, which included the following comment and recommendations:

"In the constant struggle for economic survival, progress is determined, other resources being equal, by the relative proportions of the fit and the unfit, that is to say, in effect, the percentage of the population ineffective towards national life and survival, by physical infirmity or lack of training. . .

"The Council is convinced of the urgency and importance, in any case, of establishing a national organization which shall have as its main objective a standard of physical fitness such as this country, with its racial heritages, natural environment and economic opportunities, should show.

"It is recognized that this is particularly a field of endeavour in which instead of looking passively to Governments to do all the work, and provide money (which may or may not be well spent), the people of Australia should help themselves."

97. Two months later, in January, 1939, the Commonwealth Government convened the first meeting of a National Co-ordinating Council for Physical Fitness, to arouse the Commonwealth interest and concern when he pointed out the paradox that existed in a world of ample food supply where there was still a large proportion of the world's population inadequately fed, and—in the aggregate—a vast number of people were actually undernourished.

98. The movement has grown despite the preoccupations of wartime, and we commend what has been done, especially in the recognition of the principles noted above. An essential achievement is the provision made for the development of physical education and the training of those who must teach and lead, including the provisions for a University diploma course in physical education.

99. We endorse especially a recommendation which was made to the Seventh Session of the Commonwealth Council at Canberra in September, 1943:

"The foundations of National Fitness are laid in childhood, and the schools play a major part in its promotion. Moreover, the schools have the machinery in established curriculums and trained staff through which sound principles of national fitness can be developed. The habits and attitudes established during childhood inevitably determine the attitudes of the adult."

100. We are convinced of the significant truth of that last sentence if Australia is to be peopled by a fit community and survive.

(X) Nutrition.

101. A member of this Medical Planning Committee, who was the Australian Government delegate to the International Labour Conference at Geneva in June, 1935, aroused international interest and concern when he pointed out the paradox that existed in a world of ample food supply where there was still a large proportion of the world's population inadequately fed, and—in the aggregate—a vast number of people were actually undernourished.

102. Having inspired a world-wide movement, the Commonwealth Government accepted a challenge and opportunity of examining the nutritional state of its own people and of rectifying whatever evils might exist.

103. The surveys and investigations of the Commonwealth Advisory Council on Nutrition continued from February, 1934, until a sixth and final report was presented in July, 1938. That final report recorded in detail findings which the Council observed might not be "conclusive or dramatic but are very suggestive".

104. The report of the Council continued:

"It may reasonably be assumed from the evidence reviewed that the Australian people are on the whole well-fed, but that a minority is not obtaining and may not be in a position to obtain enough food. The numerical size of this minority cannot be stated as a result of this inquiry, but within the limits of this survey it has been stated to be represented by some 6 per cent. of the dietaries recorded by housewives.

"Also, two things are very clear:

- (1) That there is much ignorance in the community as to the proper balance of food items.
- (2) That some people in both town and country are unable for various reasons to obtain the essential fresh foods.

"It is also clear that for these reasons a considerable mass of minor departures from normal health (describable generally as malnutrition) exists amongst the young children in both town and country."

"Thus the evidence points to faulty selection of diets as the main cause of malnutrition, a selection sometimes necessitated by poverty, but more often the result of ignorance."

"... It must be emphasized that the degree of ill health indicated in this report are of a minor character. The medium or severe types of malnutrition were not found. No comparison should be made, therefore, between the figures given for Australia in this report and the figures given for any other country.

"But if we are to face facts in Australia, we must realize that milk, cheese, fruit, vegetables, fish are not always or everywhere available to the public in sufficient quantities and at prices low enough."

105. These findings and observations hold true today. Wartime rationing measures have but served to emphasize the importance of an appreciation of dietary balance and values—whether as the basis of national policy or of household budgeting.

106. We are assured that in wartime rationing the responsible authorities will ensure for the normal consumer a sufficiency of food to maintain health and working efficiency. We urge, however, that full consideration be given to the maintenance of adequate supplies of essential foodstuffs for the "vulnerable groups" of infants, children, expectant and nursing women and (in a special category) invalids. In wartime, as in the peace to come, we are convinced of the essential need of meeting the full nutritional requirements of these groups. We have already insisted that the economic status of the individual is, in the last analysis, the determinant factor in health. Given that status, and education in dietary needs and values, the Australian people should be amongst the world's best-fed people. But, in so far as that status is not achieved, or essential foodstuffs are not available through failure of production or distribution (or wartime diversions) Governments must accept in principle responsibility for the nutritional condition of the mothers and children of the nation. This principle has been accepted in Great Britain by the Ministry of Food in its "free and cheap milk scheme".

107. We urge an administrative realism which will accept this principle, and which will follow expert advice upon the nutritional needs in detail of these all-important "vulnerable groups".

(XI) Industrial Hygiene.

108. There was a Division of Industrial Hygiene in the Commonwealth Department of Health from 1924 until 1932 when the division was abolished during the severe depression of that period of economic depression. With wartime responsibilities of the Commonwealth for the health of munition workers, a Munitions Medical Service has been established and functions effectively under the administration of the Commonwealth Department of Health, on behalf of the Department of Munitions. Associated also is the Industrial Welfare Division of the Department of Labour and National Service. A Committee on Industrial Hygiene in Munition Establishments, appointed by the National Health and Medical Research Council, serves to coordinate aspects of work in this field.

109. In New South Wales, Victoria and Queensland, divisions of Industrial hygiene exist in the State Departments of Health. Specialist medical officers carry out investigations and research, advising upon and coordinating health aspects of other State activities in the industrial field. Administratively, in all States, separate departments of Labour and Industry, Mines and other agencies control conditions of work in industry.

110. The objectives of industrial hygiene have been concisely stated in relation to the industrial war effort in England in the following terms, which are applicable both in peace and war in Australia:

"To suggest problems for investigation and to advise or carry out schemes of research... undertaken to promote better knowledge of the relations of methods and conditions of work to functions of the human body, having regard both to the preservation of health among the workers and to industrial efficiency; and to take steps to secure the cooperation of industries in making widely known such results of this research work as are capable of useful application to practical needs."

111. We consider that there is a great need for effective maintenance and development, along scientific lines, of industrial hygiene activities of Commonwealth and State Health Departments. We feel that in the reconstruction and maintenance of industry in Australia after this war, the Commonwealth should ensure that organized industrial hygiene will guide especially

- Scientific inquiries into the health conditions and hazards of labour.
- Coordination of legislation and of the enforcement of relevant regulations.
- Collection and compilation of uniform statistics of occupational morbidity, etc., and
- Education and propaganda.

112. There are two matters directly related to industry but of health concern to the whole community, although both are mainly city problems. We urge that civic authorities should protect their citizens by scientific attack upon the problems of noise and of smoke pollution of the atmosphere.

113. We assume that as an integral part of Australia's international cooperation in the post-war period there will be active participation in the work of the International Labour Office.

114. In relation to post-war development in Australia, and in the planning of industrial changes and developments, we desire to emphasize four matters which we consider of importance:

- The primary industries should share with the secondary industries the care and supervision of the expert services of industrial hygiene.
- Full provision must be made to safeguard the health of women in industry, and especially to protect the expectant mother who is in any industrial employment.
- Industrial hygiene should include a full service for the conservation of health. The more dramatic industrial risks are apt to divert attention from the more continuous and more prevalent, if less forceful, industrial hazards.
- Industrial hygiene, especially in wartime, aims to keep the worker fit to serve his machine for a maximum production and the problems of industrial hygiene demand the specialized services of highly skilled technical experts. These facts tend to obscure the outlook of industrial hygiene, which should be correlated with the concept of "positive health". Whilst the industrial hygiene service protects the artisan or miner from the special hazards of his trade, the service should primarily serve the men and women of industry as citizens who have a life and leisure, in which their industrial occupation is but a part.

(XII) Infectious Diseases.

115. We call attention to three matters of importance, with regard to infectious diseases:

- The cooperation of medical officer of health with general practitioner in the scheme envisaged by this Committee offers an opportunity for prevention and control of infectious diseases not hitherto possible in Australia.
- The Social Security Committee, in its sixth interim report (paragraph 21 (g)), has called attention to "the lack of standardization with regard to infectious diseases hospitals and technique; and the need for the establishment of infectious diseases hospitals on a basic plan throughout the Commonwealth in accordance with population distribution and infection risk".
- Diphtheria immunization offers a tried and now accepted method which should be extended for the elimination of diphtheria as a health problem in Australia. (During 1943, 7,045 cases of diphtheria were notified in Australia.)

(XIII) Tuberculosis.

116. The Social Security Committee reported at some length in its sixth interim report on the problems of tuberculosis, with the recommendations of which we wholeheartedly concur. We welcome the decisions of the Conference of Ministers of Health of Commonwealth and States (December, 1943), which promises a coordinated plan of activity in every State. We reaffirm the recommendations of the Social Security Committee as essential principles of the campaign:

- An increase in special rate pensions to the tuberculous and allowances to dependants (but to be not less than Repatriation payments in similar cases).
- Extended and improved facilities at chest clinics for early diagnosis of cases detected by the preliminary survey methods of 'Mantoux' testing and miniature X-ray photography; consideration should be given to making compulsory the examination of certain age-groups;
- Adequate follow-up of contacts and examination by these facilities;
- Improved accommodation and facilities for treatment, especially of early cases, in hospitals and sanatoriums, by the most modern methods and technique;
- Greater development of after-care and of rehabilitation, including occupational therapy and village settlement of 'arrested' cases.

(XIV) Venereal Disease.

117. We cannot do better than repeat the comment and recommendations of the Social Security Committee in its sixth interim report on this subject.

118. Special venereal disease legislation has been in force in every State (excepting South Australia) since 1918-19. The relevant acts and regulations provide for an anonymous system of notification of cases. Notified sufferers who make default in submitting to treatment are followed up and prosecuted if they do not resume treatment. Treatment by persons other than medical practitioners is prohibited. In no State is notification completely observed but by comparing notifications with attendances at clinics the figures do give an indication of the incidence of infection in the community. Since 1920 the trend of incidence was downwards, less marked with gonorrhoea than with syphilis, in which disease primary cases became almost a rarity. Following the Sesqui-centenary Celebrations in 1938 there was a definite increase in syphilis and also in gonorrhoea. With the onset of war in 1939, only in Queensland was there any increase in total notifications. In 1941 an increase of syphilis occurred in Victoria. In 1942 there was, in those States involved in certain troop movements, a rising incidence most marked in New South Wales, Queensland and Western Australia, and to a lesser extent in Victoria. This importation from overseas resulted in a definite increase in syphilis and also in gonorrhoea and occasioned what was new in Australian experience—the infection of girls in their early 'teens'; in 1943 there has been an indication of a decrease in infection. Over the last two years the figures have shown a preponderant increase amongst females. The males in the age-groups most subject to infection have been in the Services. Amongst servicemen and servicewomen there has been reported a very satisfactorily low rate of infection. Wartime experience shows the undoubted value of personal prophylaxis under service conditions. The other is the difficulty of control of the promiscuous girl in the 'teens and early adult life. In order to bridge the gap in State legislation the Commonwealth Government in 1942 introduced National Security Regulations which empowered Chief Health Officers of the States to take uniform steps for the compulsory medical examination of persons suspected of venereal disease and infection, with detention for treatment upon proof of infection. In practice these powers came to be utilized for the control of promiscuous girls and women suspected in those States where the situation presented most pressing problems—in Queensland and Western Australia. This matter has been the subject of protest by some women's organizations, but those responsible for the venereal disease measures have stressed the necessity for this control whilst insisting on administration remaining in the hands of responsible medical authorities and not becoming a general police power.

119. The Social Security Committee was very concerned with this problem of venereal disease as a matter which concerns the social life of the Australian community, and took evidence on many aspects of the problem. We endorse its recommendation of the following measures, which should form part of a wide campaign against venereal diseases throughout Australia:

- A continued improvement and extension of clinic facilities.
- Provision of more bed accommodation for "in" patient treatment of cases of venereal disease.
- Provision of prophylactic facilities for civilians as well as servicemen.
- Continued education of the public, provided that such education remains in the hands of responsible medical and health authorities.
- Provision for all forms of sports and for recreational and social contacts during hours of leisure.
- The social rehabilitation and treatment of the promiscuous girl.

(XV) Mental Hygiene.

120. We again endorse what the Social Security Committee has stated on this subject.

121. Evidence has been adduced that much more might be done for the prevention and treatment of nervous and mental illness and for the specialized education and social utilization of the mentally deficient. The preventive aspect is being applied more and more in the work of the Departments of Mental Hygiene in all States. Especially is this so, as it should be, in the case of the mentally handicapped child. Good work has been instituted and the departments have freely collaborated with Education and Child Welfare Departments and other agencies in this field. Child guidance clinics,

¹ The Social Security Committee rates approximated the basic wage.

opportunity classes and special schools have done much in cases of functional mental disease and mental deficiency in children; treating and alleviating the condition when it is curable, training the incurable to the limit of capacity.

122. There is still much room for research and application of modern method in this field. Beyond the achievement which is possible in the individual case, any advance will help to solve these problems of modern life in which mental deficiency, character maladjustment and neurosis enter so largely—for example, child delinquency and crime; prostitution and venereal disease; and a quota of the unemployable. We are of opinion that

- (a) There should be a survey by competent experts into all aspects of the problems of mental deficiency and of mental illness throughout the Commonwealth.
- (b) Such a survey should concentrate especially on existing activities and future possibilities of action for the care and treatment and the supervision of the mentally handicapped child.
- (c) In any future developments, it is very desirable that collaboration in the field of mental hygiene should embrace all medical and health services since psychological and mental aspects enter into every field of health.
- (d) There should be uniformity of legislation in respect of control of mental sickness throughout Australia.

(XVI) Tropical Medicine and Hygiene.

123. The Social Security Committee has taken no evidence with special reference to health and disease in the tropical areas of Australia and its territories. At the present time, however, every Australian, as never before, appreciates the task and achievement of medical services in these tropical areas. We urge, therefore, that in medical planning for the future, full recognition should be afforded for the provision and maintenance of adequate health and medical services for these areas.

124. The Services should have all the scientific resources necessary for effective advancement of the health of our own people and of those native peoples entrusted to our care, either under our direct administration or in our wider international responsibilities in the Pacific.

125. The Sydney School of Public Health and Tropical Medicine has already played a notable part in relation to our own territories and in international cooperation in the Austral Pacific Zone. Many Medical Officers and other personnel have been trained at the School in the special problems of these areas. These activities will be increased greatly in scope and magnitude as our comprehensive Pacific responsibilities develop. We recommend that the School should be enlarged to provide the additional accommodation which will be necessary to discharge fully its functions as a centre for training and scientific investigation and inspiration. Since these problems in the Pacific are of immediate, as well as of post-war importance, any possible development should be afforded a high priority as an essential service.

(XVII) The Toll of Accidents.

126. Deaths from accidents rank fifth or sixth amongst the principal causes of death. In 1942, in the total deaths in Australia of 75,191 persons, deaths from accident ranked sixth, preceded by diseases of the heart (21,006), cancer (8,491), intracranial lesions of vascular origin (6,750), pneumonia (4,471) and nephritis (3,893). The 3,611 deaths from accidents or violence far exceeded those from tuberculosis (2,584).

127. Automobile accidents—what the Americans significantly call "vehicle"—caused 961 deaths in 1942, compared with an annual average of 1,394 deaths over the three years before the war. The Melbourne City Coroner, commenting recently on a 50% decline in road deaths in that city, has attributed this to (1) the lifting of black-out restrictions; (2) the introduction of 30 m.p.h. speed limit; and (3) petrol restrictions.

128. During 1942, accidents on railways caused 180 deaths, "other" road deaths (tramways, etc.) 211, motor transport 30, civil air accidents 15, mines and quarries 68, agricultural and forestry 48, and accidents caused by machinery 46.

129. The toll of accidents is too often of the young and strong. We urge support of all "Safety First" movements in industry and on the road. The speed restrictions in built-up areas and more recent wartime regulations appear to have influenced a declining death rate from automobile accidents. There is general agreement with stronger measures to curb the irresponsible and drunken driver. From the health and medical aspects, there is a threefold interest in measures to reduce this toll of accidents, (1) in the unnecessary deaths; (2) in crippled and disabled citizens, often in the full strength of youth; and (3) in the heavy demand upon hospital accommodation and attendance which accident cases involve.

(XVIII) Administration.

130. The Medical Planning Committee has envisaged, in the Medical Services section of the comprehensive health scheme recorded later, a service which is "directed to the achievement of positive health and the prevention of disease, no less than to the relief of sickness". That scheme envisages an integration of preventive and curative medicine, a system of district and local medical officers of health in close collaboration with general practitioners, on a basis of health districts and served by local community health centres.

131. We are of opinion that an effective administrative machinery can be devised whether that scheme is to function under present constitutional arrangements, or whether it may be serviced by any of the projected schemes which have been discussed, but until the constitutional issue is determined as to the allocation of powers between Commonwealth and States, no clear administrative picture can be demonstrated.

(XIX) Uniform Legislation for Food, Drugs and Poisons.

132. The Social Security Committee, in its sixth Interim report, noted that Commonwealth powers in respect of foods, drugs and poisons relate only to control of import and export under commerce legislation; the international obligations covering narcotic drugs (under the Geneva Opium Convention) are administered by the Department of Trade and Customs. Inspection and sale of food and drugs are dealt with in each State under Health and Pure Food Acts or special statute. Problems arise especially in the control of such an article as milk, which is both a product and a food and so subject to control by agricultural, veterinary and health services. Poisons are controlled in four States by Pharmacy Boards and in two by Health Departments. Some uniformity has been achieved in standards of food and drugs through Commonwealth and State conferences and in recent years by the regular sessions of the National Health and Medical Research Council. A proposal was revived during 1941 for a further conference representative of governmental, professional and trade interests to formulate greater uniformity in State legislation

and administration. The National Health and Medical Research Council considered that in normal times it should be possible to achieve material progress towards a greater uniformity. We concur with this decision and urge that it should be put into effect.

(XX) Health Education.

133. We have been interested in the methods adopted throughout Australia to educate the public in matters of public health. Much more might be done, were the means available, but much is being well done through the publicity programmes of Commonwealth and State Health Departments and of voluntary societies. Broadcast talks, prepared under the auspices of the British Medical Association, have covered admirably the "Health Front" and the "Kitchen Front".

134. In Western Australia the Social Security Committee heard in evidence a country practitioner who gives a weekly lecture to the local school; an excellent syllabus covers a wide field and, as he stated, he is "even allowed to tell the children how to prepare their bodies for parenthood".

135. That subject of sex biology raises perhaps the most contentious question in popular health education. We have been impressed with, and endorse a resolution of the Fifteenth Session (May, 1943) of the National Health and Medical Research Council, with special reference to the prevention of venereal diseases. The relevant recommendations of this resolution were as follows:

"The Council appreciates the necessity for commencing biological education at as early an age as possible.

"In the primary schools, general biological education and nature study are desirable, but the Council believes that specific sex education should not commence at the primary school age.

"Parental responsibility in relation to general social conduct and self-discipline should be upheld and encouraged, but the Council appreciates the real difficulties in the way of parental education of sex biology on an accurate basis because of the ignorance and diffidence of many parents. "As the children pass to the secondary school age, the need for intelligent education in the main features of sex biology becomes more pressing.

"This Council is of the opinion that the educational authorities should very carefully consider the introduction of instruction in sex biology and in the dangers of venereal disease by properly trained teachers.

"Newspapers offer a desirable medium for education of the public in relation to venereal diseases, provided that the letterpress consists of statements issued by the Commonwealth or State Health Departments or by official medical bodies, such as the British Medical Association, the College of Surgeons or the College of Physicians. This applies whether the statements appear as paid advertisements or as news items.

"Radio broadcasting is open to the objection that all members of the family of all ages hear these broadcasts without notice.

"This form of education would need to be very carefully safeguarded. "Perhaps the British Medical Association might consider extending its admirable series of health talks through the Australian Broadcasting Commission to cover a series of plain talks on venereal diseases.

"The Health Department also might consider the preparation of broadcast talks on this subject when possible.

"Pamphlets are a recognized method of education and should be widely used—a number of pamphlets issued by official departments and other responsible agencies are now available.

"Cinema films can be used with advantage, but these should always be approved by the Department of Health.

"Posters have a definite value, but these should always be issued by official departments."

136. Whilst we support full and frank discussion in all matters of social concern, we deplore the recent popular exposition of a so-called "sexology". We regret that some medical men should have been associated with articles in popular magazines and addresses in public lecture halls which concentrate attention upon an exaggeration of anatomical and physiological detail, with a discussion of intimate matters which belong to the consulting room or the psychiatric clinic. We are assured by competent medical opinion that this perverted specialism and its popular expositions are both unscientific and unhealthy.

137. We urge that Governments should recognize the necessity of sound principles of popular education in matters of public health. Unfortunately much of this health education and propaganda must compete with all the wealth and artistry which modern commerce can command to advertise its products. Governments must be prepared to make available adequate financial resources to meet that competition.

138. We agree, however, that much unscientific and quasi-scientific advertisement should be controlled in the interests of the public health. We believe that good has been achieved, without undue loss of freedom of expression and commercial enterprise, by the censorship of broadcast medical talks by the Director-General of Health under the provisions of the Broadcasting Act.

139. We wish to emphasize that popular education in health can only succeed if it secures sustained personal interest and the acceptance of personal responsibility by the individual. In this whole issue we are convinced of a cardinal rule—the achievement of "positive health" resolves itself largely into the inculcation of essential principles in childhood. No comprehensive health scheme can secure continuity unless it so insures itself with the coming generation.

(XXI) Summary of Essential Aspects.

140. There are essential features of this section which the Committee cannot too strongly emphasize. We have stressed throughout that the welfare of the child is the matter of paramount importance in public health.

141. Since nothing could more surely enhance the security and prosperity of the Australian Commonwealth than a rapid and progressive increase in the indigenous population, we strongly urge that everything possible should be done to encourage people to marry earlier and have larger families. We believe that this natural increase in population would result if the Government gave a clear lead and showed its appreciation of the vital importance of the problem by providing better housing facilities, by undertaking to financially assist those prepared to undertake parenthood, and by making provision to improve the amenities and lessen the drudgery of family life. Such provision would entail better care of expectant mothers and the establishment of very large numbers of day nurseries, crèches and kindergartens so that all mothers with young families would have close at hand an establishment where their children could be cared for while they themselves attended to their household duties and shopping.

142. It would also be necessary to provide groups of home helpers who could assist in times of sickness and other emergencies and on a regular roster take charge of homes to enable parents to go out together.

143. We would greatly stress, also, the importance of better supervision of the mental and physical health of every child from birth to adult life. A great improvement in the general well-being of children of the pre-school age would result from the greater availability and much wider use of the day nurseries, creches and kindergartens not only as a result of the care and training they would receive there but also through the contacts the mothers would make with the trained personnel in charge. During the school period we believe that a much higher standard of health would be achieved if a greatly increased number of playgrounds were provided and if the children were more closely watched for evidence of under-nutrition, lack of parental care, nervous instability and other minor departures from health and if all schools had attached to them nurses or trained social workers empowered to visit the children's homes whenever it appeared likely that they were suffering as a result of an unsatisfactory environment.

144. We regard the abovementioned matters as the most urgent social problem facing the Commonwealth at the present time and would stress the need for taking immediate steps to deal with them. We realize that the implementation of the programme we have outlined would involve the expenditure of a very large sum of money but we feel confident that any public funds available for social security could not be devoted to a better purpose.

145. On such a basis, public health in Australia would be developed on a sure and sound foundation. We believe that in every other field of health the accent must be upon youth. The need, the interpretation and the impact of each phase of preventive medicine must be considered primarily in relation to the children of this country.

146. We reiterate certain recommendations which we have made in this report, as matters of some special importance.

147. We urge that industrial hygiene should be an active function of Commonwealth and State Health Departments, in close collaboration with labour, mines and similar departments. There should be vigorous research into health conditions and hazards of industry, correlation of legislation and statistics, and above all an application of the concept of positive health to the citizen in industry, whether in the factory, the office or on the farm.

148. With regard to tuberculosis, we have recommended as essential principles of the campaign:

- (a) An increase in special rate pensions to the tuberculous and allowances to dependants (but to be not less than Repatriation payments in similar cases);
- (b) Extended and improved facilities at chest clinics for early diagnosis of cases detected by the preliminary survey methods of "Mantoux" testing and miniature X-ray photography; consideration should be given to making compulsory the examination of certain age groups;
- (c) Adequate follow-up of contacts and examination by these facilities;
- (d) Improved accommodation and facilities for treatment, especially of early cases, in hospitals and sanatoriums, by the most modern methods and technique; and
- (e) Greater development of after-care and of rehabilitation including occupational therapy and village settlement of "arrested" cases.

149. We again urge the practical adoption of those measures necessary for an adequate campaign against the menace of venereal disease:

- (a) A continued improvement and extension of clinic facilities;
- (b) Provision of more bed accommodation for "in-patient" treatment of cases of venereal disease;
- (c) Provision of prophylactic facilities for civilians as well as servicemen;
- (d) Continued education of the public, provided that such education remains in the hands of responsible medical and health authorities;
- (e) Provision for all forms of sports and for recreational and social contacts during hours of leisure; and
- (f) The social rehabilitation and treatment of the promiscuous girl.

150. In the field of mental hygiene, we are of the opinion that:

- (a) There should be a survey by competent experts into all aspects of the problems of mental deficiency and of mental illness throughout the Commonwealth;
- (b) Such a survey should concentrate especially on existing activities and future possibilities of action for the care and treatment and supervision of the mentally handicapped child;
- (c) In any future development, it is very desirable that collaboration in the field of mental hygiene should embrace all medical and health services, since pathological and mental aspects enter into every field of health; and
- (d) There should be uniformity of legislation in respect of control of mental sickness throughout Australia.

151. We realize the immediate concern to Australia of Tropical Medicine and Hygiene—in the war as in the peace to come. We urge full recognition of the medical and health needs of all those island groups for which we have a direct—or indirect—responsibility. The Sydney School of Public Health and Tropical Medicine will have increasingly important functions, and we recommend that the School should be enlarged to provide the additional accommodation which will be necessary if it is to discharge fully these functions.

152. We express the hope that early opportunity will be taken, as more normal times return, to convene a conference, representative of governmental, professional and trade interests, to formulate greater uniformity in State legislation and administration relating to food, drugs and poisons.

153. We recommend that all Governments should increasingly recognize the need for health education and propaganda on a basis of sound principles. We believe that sex biology should be taught to children of secondary school age by competent teachers but that parental responsibility for general social conduct and self-discipline must be more widely stressed.

154. We are of the opinion that popular education in regard to venereal disease should be conducted only by health departments or officially recognized medical bodies, and, further, that much unscientific and quasi-scientific advertisement should be controlled in the interests of the public health.

155. For better "health accountancy" throughout the Commonwealth, we recommend that:

- (a) Definite and formal cooperation should be established between the statistical and health agencies of Commonwealth and States;
- (b) Legislation, where necessary, should be enacted to provide that such statistics as are required shall be furnished by Government Departments, Friendly Societies, Industrial and other bodies, such as public hospitals and by medical practitioners; and
- (c) A competent medical officer, with special aptitude and qualifications, such as a University training in statistical method, should be seconded from the Commonwealth Department of Health for service with the Commonwealth Statistician, to organize under the direction of the Statistician, the development of morbidity statistics in Australia.

¹ The Social Security Committee rates approximated the basic wage.

SECTION II.—HOSPITAL AND ANCILLARY SERVICES, AND RESEARCH.

(i) Hospital Services.

(i) Uniform Hospital Standards and Services, Planning and Administration.

156. It is evident that at this stage of hospital construction there must be an optimum plan for building each type of hospital that is needed, minor modifications for the differing climatic conditions that occur in the Commonwealth of Australia being the only necessary modifying factor.

157. The existing system of building hospitals in Australia calls for a multiplicity of planning committees, architects, etc., many of whom are approaching the problem for the first time in their careers. Few of the people concerned have had an opportunity to study the problem widely, frequently they have no knowledge of conditions outside the confines of their own small district. The rapid advances in hospital construction, both overseas and in this country, are not known to many who, under our present system, are charged with the responsibility of erecting with public funds hospital accommodation of all types.

158. Of the hospitals in Australia, few, if any, are of a similar type of construction. Such a position obviously calls for the provision of expert advice in all cases in which hospital construction is undertaken, so that every district in the community shall be assured that it will get the best value for the money expended. Hospital construction and equipment is an expert study, and great economies can be effected by standardization (due regard, of course, being paid to the necessity for the advising body being given adequate opportunity to study all advances in planning and equipment and from time to time modifying its standards to meet any advances in knowledge).

159. We are of opinion that there should be established a Commonwealth expert advisory body charged with the responsibility of studying and giving advice to hospitals throughout Australia on their planning, construction and equipment; that this body should work out uniform standards of planning, construction and equipment suitable for the different climatic localities of Australia; and that all problems of new construction or modifications of existing constructions should be referred to this body for its advice and approval. All new constructions should as far as circumstances permit conform to the standard plan for that size and type of construction regarded as the optimum plan at the date of the projected new construction; the advisory body should have opportunities of keeping abreast of world development and knowledge in hospital planning, construction and equipment; and it should be a specified condition of Commonwealth subsidy that every subsidized hospital will accept and implement the advice of this advisory body.

160. This body could delegate its authority to a similarly constituted body in each State to carry out the details of administration.

(ii) Regionalization Plan and Functions.

161. The objective, so far as a medical health service in Australia is concerned, is to make available to every member of the community the best possible protective and corrective medical care; two further essentials are that the services within the area selected as a unit in the scheme must be properly correlated with others within and outside the area, and that the provision of the service must be adequate and available. None of these three postulates is at present satisfied in any State of Australia.

162. From the commencement of organized health services the local authority unit has been accepted as the essential unit, and a scheme for regionalization naturally looks primarily to existing local government areas (of which there are nearly 1,000 separately established in this country). It would appear, however, that a complete personal and environmental programme for health in the modern sense is beyond their individual powers.

163. Studies in other countries indicate that few, if any, local authority areas of 20,000 people or less are equal to the administrative, financial, or specialized professional functions of a complete scheme; that the provision of (say) specialist services or full general and special hospital facilities is beyond a community of less than 100,000 people—doubtless having in mind closely settled areas of that size; and that (say) provision for tuberculosis may conveniently cover 250,000 people; and that provision for mental sickness including all psychiatric aspects should cover 500,000 people.

164. As a generalization it seems that units of 50,000 to 100,000 people can provide both environmental and personal health and medical services within their areas, if specialists are supplied to them as needed, from without, and the largest of their problems dealt with on a "regional" basis or from a national standpoint. In Australia this last category might conveniently include such matters as mental illness, the prevention and care of tuberculosis, of venereal disease, of cancer, etc.

165. From another viewpoint the provision and the need for health and medical services are materially affected by population density, the frequency or specific nature of health hazards, the ease or difficulty of transport services in any area, and the availability of medical men and hospital or other facilities.

166. The first of these considerations, *population*, introduces a problem in which Australia is almost, if not actually unique: approximately one-half of the total population is in or about the six State capitals, and the whole remainder of the population is spread very thinly over the populated area of the Continent with a relative sprinkling only of large towns. Moreover, more than one-third of the Continent is uninhabited because of its arid nature; five-thirteenths of it lies within the tropics; and the early settlement of Sydney, Hobart, Launceston, Melbourne and Adelaide gave an impetus to the south-eastern coastal edge of Australia that still is obvious, in terms of population and facilities.

167. Apart from the general problem, therefore, there is a twofold aspect: the cities, densely peopled, present the metropolitan aspect—they need regionalization by *subdivision and correction of duplicated or overlapping facilities*; the rural areas, sparsely peopled and sprinkled with many small towns, villages and railway sidings or outpost camps, call for regionalization by *combination of facilities, the grouping of isolated units, and the provision of supplementary occasional services and betterment of transport services*.

168. The maps prepared by the Medical Survey Committee¹ and associated with their report show the distribution of all hospitals and indicate (if compared with population distribution) their relation to density of population; transport services (rail and road) are also shown, though not completely; the distribution of medical practitioners has been determined by lists compiled as carefully as possible by authorities in each State; and the subdividing lines have been drawn subject to these considerations and others. It is noted that, for other purposes (electoral, statistical, police, educational, physiographical, etc.) there are already several existing schemes of subdivision and advantage has also been taken of these in elaborating the series.

¹ Medical Survey Committee of the Commonwealth Parliamentary Joint Committee on Social Security.

169. The subdivision does not show the proposals for regionalization in metropolitan areas. There is already a rough subdivision of activities and facilities in these great city areas, but it has been the accidental result of a multiplicity of private, incidental and governmental interests and influences. To correct it would require the closest and most meticulous activity for an agreed measure of cooperation and would undoubtedly require to be achieved in stages over a period of years. For this reason the Medical Survey Committee has not specified any proposals in detail.

170. In all areas, the actual organization and coordination of services which is, in the true sense, regionalization, will depend upon the basis accepted for control and the legislative steps taken to implement it.

171. Both in metropolitan and rural areas, these linkages and correlations are matters for intensive local study by the parties concerned. They may be suggested, as they are in the maps, but they can only be efficiently established in operation after close and frequent discussions between the local (State) authorities and the medical profession.

172. It is considered that, even including the metropolitan areas, this could be achieved within a few months for some, and in ten years as a measure of planned economy throughout all Australia.

173. The maps attached to illustrate this section of the Medical Survey Committee's report are, in their order, regionalized plans for (a) New South Wales; (b) Victoria; (c) Queensland; (d) South Australia; (e) Western Australia; (f) Tasmania; and (g) Population Chart, illustrating density of population throughout each of the States, as listed, and for Australia as a whole.

174. The recommendations of the Medical Survey Committee envisage in each region in the country, outlying cottage and district hospitals draining to a base hospital, which should be fully equipped with all necessary aids to diagnosis and full facilities for treatment, and adequately staffed with specialists to provide every service required in the community. In some regions this need may be met by specialists being allocated to a number of regions which they visit in turn and periodically.

175. The function of the base hospital should thus be that it is the end point in the region of a series of lesser hospitals from which the general practitioners in the outlying district can refer their patients for further elucidation of the diagnosis, or for surgical or medical treatment by specialists, in those cases with which they themselves do not feel competent to deal.

176. Such base hospitals would, of course, need an efficient transport system and the services of an adequate resident medical and nursing staff and a staff for the ancillary services, i.e., physiotherapy, dietetics, occupational therapy, laboratory and X-ray techniques, etc., and each self-contained district would also include within its confines adequate evacuation facilities for sub-acute, chronic and convalescent patients, so that these patients would not have to leave their own district. These sub-acute and chronic facilities should be completely divorced from the Homes for the Aged and Infirm, which should each have its own sick bay to deal with minor illnesses, but whose patients, when they suffer from more serious maladies, should pass out from the Home and into the care of the hospital organization of the district.

177. Flying Doctor Services and hospital services in outlying districts should also be extended and organized to provide lines of evacuation to country base hospitals.

178. In the cities the teaching hospitals and large metropolitan hospitals correspond to the base hospitals of the country districts. They should be surrounded by a ring of district hospitals suitably located according to density of population and transport facilities, and draining their more difficult and serious cases to the city base hospitals which would also receive cases evacuated from the country base hospitals for elucidation of the diagnosis or treatment by more highly skilled specialists. The City of Sydney is reasonably well planned on this basis, but no other city of the Commonwealth meets these needs fully at present.

179. This Committee concurs with the recommendations of the Medical Survey Committee regarding the plan of regionalization, and recommends their adoption as the basis for further detailed study and recommendation by an expert body. This body might be the expert advisory body recommended in paragraph 158 of this report.

(iii) Teaching Hospitals.

180. Four cities in Australia, viz. Sydney, Melbourne, Adelaide and Brisbane, conduct teaching hospitals for medical students. General hospitals which are medical schools must be regarded in a category distinct from all other types of hospitals. They are the centres on which depend the standard of medical, nursing and ancillary services and research practice throughout the whole Commonwealth. The standard of these services throughout Australia rises and falls with the standard set by the teaching hospitals. Because of their teaching function, they are necessarily more expensive to maintain than all other types of hospitals and their adequate financing is vital to the maintenance of medical, etc., standards and progress in medical science.

181. Medical schools must be located in close proximity to a University. The scientific, therapeutic, economic and social advantages of such a liaison are obvious, and such a location conserves the time of teachers and students.

182. The whole trend of world opinion has therefore been towards centralization in a Medical Centre closely attached to a University, of all the hospital facilities necessary for the training of the student. We must show vision in these projects by taking immediate steps to plan such a medical centre in all the cities concerned, and to ensure that sufficient land is available at reasonable cost to provide for the ultimate expansion of these centres to the projected maximum needs of the future population of the States. Such a scheme has been tentatively planned in Sydney and there are great possibilities in Melbourne and Brisbane to do similarly. We cannot too strongly stress the need for immediate attention being directed to this problem so that posterity will not be faced with prohibitive costs of the expansion, which is inevitable as population increases.

(iv) Out-Patients.

183. We believe that there is a need for decentralization of out-patient services. Where, in any district, there are not at present reasonable facilities available for patients to reach the out-patients' departments of hospitals, we recommend that decentralized clinics should be erected, to which patients could be sent for investigation and specialist treatment.

(v) Hospital Administrators, Course of Training.

184. We are of opinion that there is an urgent need in this country for the provision of facilities for training of personnel undertaking hospital administration. For too long we have followed the haphazard method of appointing to these positions, in most cases, men without previous experience of this specialty. Such a system is not in the best interests of hospitals, and we therefore recommend that a specified course of training and apprenticeship should be established to provide better trained personnel for this purpose.

Such a system, of which full details are available to the Social Security Committee, operates in America, and we strongly recommend that a similar type of training be organised here on a Commonwealth-wide basis, as the demand is too small for each State to undertake it separately.

(vi) Hospital Accommodation.

185. We would preface our remarks on this subject by stating that it is our opinion

(a) That every patient in Australia who, in the opinion of his medical attendant, needs hospitalization, should be assured of immediate admission to a hospital suitably equipped for the treatment of his disability.

(b) That every medical practitioner should have facilities for treating his patients in his local cottage or district hospital for such illnesses and injuries as do not require transfer to a base hospital for specialised treatment; and

(c) That it is the duty of those charged with the medical care of the people to ensure that sufficient hospital beds adequately equipped and staffed are available to meet the requirements for immediate admission to hospital of all the sick and injured.

186. Hospital accommodation can be considered from two points of view. The first is that of quantity. The report of the Medical Survey Committee shows that, based on world standard requirements, the present estimated population of Australia is 6,690 beds short in its general hospitals (including provision for general medicine and surgery, maternity, children, infectious diseases and convalescent patients); 2,983 beds short in hospitals for tuberculosis patients; and 6,994 beds short of the standard accommodation required for mental diseases; a total shortage of all types of beds of 16,647.

187. Proper care of the sick and injured cannot be achieved in the face of such desperate lack of provision for accommodation. This situation should be remedied immediately.

188. While the Medical Survey Committee report clearly indicates that there is urgent need for many more hospital beds, it also makes it clear that it would be more efficient and economical if all hospital beds were concentrated into larger units with adequate transport facilities and a resultant decrease in the present large number of minor hospitals. Evidence suggests that the smallest size unit which can give proper efficiency and be conducted economically is a 200-bed hospital, and in those areas which will support such a number of beds this should be the minimum unit of construction.

189. Detailed consideration of the shortage in general hospitals reveals that the lack of provision exists chiefly in that for sub-acute and chronic diseases, and that the greatest deficiencies occur in the States of New South Wales and Victoria. The Medical Survey Committee draws urgent attention to the large number of patients suffering from sub-acute and chronic diseases occupying beds at high maintenance costs in acute general hospitals. The over-increasing economic loss of this system is disturbing, and should be remedied at once.

190. This Committee is of opinion that it is useless making grants to patients of monies for hospital accommodation benefits, free medicines, etc., if there is no provision for patients to utilize these benefits by being able to gain admission to hospital when needed. We feel that the first and most urgent call on any fund should be the making good of all deficiencies in hospital accommodation, that the immediate and cheapest solution lies in overcoming the glaring deficiencies in accommodation for sub-acute and chronic diseases, and for the evacuation of these patients from acute hospitals with resultant lowering of maintenance costs. The accommodation provided for such sub-acute and chronic hospitals should be of the best possible type, and they should be adequately equipped and staffed to secure the restoration to health and rehabilitation of these patients.

191. The chronic and sub-acute hospitals serving metropolitan areas should be located in close relation to the Universities and the teaching hospitals.

192. We are of opinion also that such sub-acute and chronic accommodation should be decentralised into regionalized districts, so that these patients are within reasonable distance of their homes, and that such hospital accommodation should be entirely divorced from that provided as homes for the aged and infirm. If, because of financial stringency, this involves the deferment of any monetary benefit to patients, we are strongly of opinion that this is the only statesmanlike view to take, and that it will make an infinitely greater contribution to the health of the community than any monetary benefit to individuals.

193. The average quality of hospital accommodation leaves, according to the report of the Medical Survey Committee, much to be desired. We agree with the opinion expressed by that Committee that closer supervision of hospitals is urgently necessary, and it is our opinion that no hospital should be registered or permitted to function which fails to measure up to standards of construction, maintenance, administration, equipment, clinical care of the patients, and the keeping of standard statistics, as laid down by such an expert Commonwealth body as has been recommended previously in this report.

194. In maternity hospitals particularly, we draw urgent attention to the following grave deficiencies in very many hospitals, and which are all too common:

(a) Lack of provision of hostels for expectant mothers awaiting admission.

(b) Low standard of accommodation and equipment.

(c) Lack of attention to the accommodation and care of the baby, and in the vast majority of hospitals, the entire absence of any provision for the care of the premature or sick baby.

(d) Limitation of stay of patients to ten days (largely influenced by the shortage of beds).

(e) Lack of convalescent accommodation.

(f) Inadequate provision in the home of nursing and domestic help, both pre-natal and post-natal; and

(g) Inadequate pre-natal supervision of the expectant mother.

195. In some hospitals pre-natal supervision is provided in the out-patients' department for some expectant mothers. In other hospitals and even in those conducting pre-natal clinics, there is need for a closer liaison between the medical attendant conducting the pre-natal care and the hospital.

196. We also recommend that it should be a fixed condition of subsidy or grant of capital expenditure to any hospital that such financially-assisted hospital must not refuse admission to any patient requiring treatment, except on the ground that every bed in the hospital is occupied at the time of the patient's application.

197. We are also of opinion that ambulance services should be placed under the direct control of hospitals.

(vii) *Admission of Patients to Hospitals.*

198. We recommend that in all metropolitan areas there should be established a central hospital admission depot. This depot would assume control of the admission of all patients to subsidized hospitals which would be responsible for keeping the depot informed of the bed states. Each such depot should be under the control of a medical officer.

(II) *Ancillary Services (Nursing, Physiotherapy, Technicians, Almoners et cetera and Ambulance Services).*(i) *Nursing Services.*

199. We are of opinion that there should be a standard course of training, standard conditions (subject to basic wage variations), and uniform registration for all nurses in Australia. We believe that the details of such a scheme should be worked out by a conference of representative medical men and nurses appointed for that purpose.

200. We recommend also that all nurses should undergo a course of preliminary training; that such courses should, as far as possible, be centralized into a College of Nursing, and that, exclusive of the preliminary training course, a nurse's training should extend to four years, three years being spent in general training, nine months in obstetric training, and three months in specialist training. We further recommend that the three years general training should include periods in which nurses are seconded to special hospitals for instruction and training in infectious diseases and also in any other specialty which the general hospital does not provide in sufficient amount.

(ii) *Other Ancillary Services: Technicians, Physiotherapy; Laboratory and X-ray; Dietitians, Almoners, etc.*

201. All these services are now an integral and important section of hospital service, and should extend as far as at least as district hospitals in the city and base hospitals in the country. Properly organized courses of training exist for some, and need establishment or improvement for others. These defects should be made good to ensure a steady flow of skilled staff to conduct these important aids to efficient diagnosis and treatment.

(III) *Research and Powers of the National Health and Medical Research Council.*

202. Consideration of this matter by the Medical Planning Committee was deferred.

SECTION III.—MEDICAL SERVICES.

(I) *Medical and Health Services.*

203. Having regard to all the circumstances and to the need for early and substantial reorganization of, and improvement in, health services generally as indicated herein, we consider that a Comprehensive Health Service should be one directed to the achievement of Positive Health and the prevention of disease, no less than to the relief of sickness; and should be available to every individual in the community.

204. It should normally provide the services of any necessary consultants and specialists, laboratory services, and all ancillary services, together with institutional provision when required. The several parts of this Comprehensive Health Service should be closely coordinated and developed by the application of a planned national health policy.

205. We believe that, in the setting up of any Comprehensive Health Service, the preservation of the doctor-patient relationship of the family doctor and of the principle of free choice of doctor is essential.

206. For the provision of such a service it is necessary to subdivide the populated areas into (i) remote areas; (ii) country areas; and (iii) metropolitan or city areas. Each of these will now be dealt with in turn.

(i) *Remote Areas.*

207. For Remote Areas a voluntary full-time salaried or subsidized medical service under a limited term appointment; with improved hospital and transport services, including extended ambulance and flying doctor services, and facilities for consultant services is essential; such services to be established and extended as necessary.

208. We consider a "Remote Area" in this sense to be (a) an area with 1,000 people¹ or more resident within a radius of 25 miles and unprovided with a doctor, and/or (b) any area in which the medical necessities of the whole area can be met by a hospital provision of 20 beds or less.

209. In all such appointments, the emolument and conditions of service should be such as to make the post attractive to a good type of competent medical practitioner; in particular, they should include specific facilities for adequate post-graduate study.

210. With regard to the provision of specialist and consultant services, circumstances may dictate one of three solutions, namely:

- The building up at the nearest base of specialists of general practitioner standing; or
- The provision at regular intervals of service through visiting specialists as required; or
- The transfer of patients needing specialist service to the nearest base centre or capital city.

211. Such specialist services might, in accordance with circumstances, be paid on a fee-for-service, seasonal or salaried basis.

212. To ensure coordination between the practice of preventive and curative medicine, the medical practitioners should also be the medical officers of health for their respective areas and, as such, should be specifically responsible to the regional or district health officer.

(ii) *Country Areas.*

213. Country Areas fall naturally into the divisions *Minor and Major Country Centres*. Country Centres are larger country towns often situated at rail junctions, ports, road or rail heads where they act as natural centres for areas varying in population. According to their size they show a more or less complete sufficiency for general medical purposes other than the most highly specialized. The larger centres are the towns suited to be key towns in any plan for districting or regionalization of medical and hospital services. It has been generally accepted, and this Committee agrees, that it is desirable

¹ In even less populated districts, the flying doctor service operator and will be mentioned later.

that there should be a regionalization of the populated area into medical and hospital districts. (See also paragraphs 161 to 173.)

214. Medical practice (as at present provided by a private practitioner or governmental service) in these, or in any area, may include (a) consulting room practice, (b) domiciliary practice, (c) institutional practice, (d) preventive practice in respect to health, and (e) specialist practice.

215. *Consulting Room Practice.* Patients may consult a medical practitioner either at the rooms of a practitioner privately or, in certain circumstances, at general hospitals or, at institutional or at group centres either private or governmental, in which several practitioners collaborate.

216. The essential advantage of individual consultative practice is its privacy and its maintenance, at the highest level, of the confidential patient-doctor relationship. In a great proportion of cases such consultations can immediately meet the patient's requirements, but in a lesser proportion of cases some consultation with medical colleagues is desirable. As a matter of traditional practice there has grown up for convenience a tendency to concentrate medical activities in certain streets and, indeed, in certain blocks of buildings where doctors, while preserving their individuality, nevertheless have access to the assistance of their fellows, as desired. In some instances this has resulted in the establishment of group centres and group practice. Such group centres, definitely organized, might materially assist to complete the medical provision available to the patient.

217. *Domiciliary Practice.* The viewpoint as to domiciliary visiting has matured very much in recent years owing to modern economic trends, life in flats and apartments, difficulties in respect of domestic service, improved facilities and availability of hospitals, etc. etc. The essential purpose of domiciliary visiting is the diagnosis and assessment of severity of the case, and this may obviously require more visits than one. Whilst the great advances that have been made in medicine in recent years have resulted in a greater proportion of patients being admitted to hospitals, there will always be a considerable proportion of patients who, by reason of the nature of the illness from which they are suffering, will require medical care in their own home. Obviously domiciliary visiting will, therefore, remain a considerable part of medical practice.

218. *Institutional Practice.* In minor and major country centres institutional activities may include (a) a public hospital partly or wholly financed by the Government; (b) voluntary hospitals partly or wholly financed by subscriptions; and (c) private hospitals which may or may not be denominational.

219. In many instances, but not in all, every locally practising medical practitioner has the right to follow his patient into any one of these hospitals. In so far as this is to the interest of the patient, this policy should be maintained. The importance to a general practitioner, and to the efficiency of his service to the community, of an association with a hospital is difficult to exaggerate. The contacts it affords with fellow practitioners and the team work it involves stimulate him to a higher standard of efficiency, with consequent benefit to the community. Further, in the case of those patients who are rightly transferred to the general wards of a hospital for specialist treatment, the transfer to hospital is often marked by an unnecessary complete break between the patient and his family doctor. A much closer cooperation should be secured by more effective methods of communication and exchange of information between the hospital and the general practitioner. (See also paragraphs 174 to 176.)

220. The growing out-patient problem in certain of the larger country centres is dealt with later in the discussion of this problem in city or metropolitan areas, and also in paragraph 183.

221. *Preventive Practice in Respect of Health.* Preventive services which, at one time, included only the sanitation of environment, have grown with increasing recognition of the objective of positive health and with increasing governmental participation to comprise a considerable range of activities, of which routine sanitation is now a minor aspect only.

222. Preventive health procedures find expression in many ways, from maternal and child welfare centres, pre-school clinics and school health services to, for example, physical education and national fitness activities.

223. These are at present inadequately coordinated and they insufficiently utilize and correlate the special facilities the private practitioner can provide in that regard.

224. Preventive health work, moreover, has assumed the dimensions of a specialty and should be regarded as such.

225. In country towns acting as major or minor centres, such activities should be collected, where possible, into one building which should function as a community health centre under the direction of a district medical officer of health for the area concerned, to whom the medical officers of health in subsidiary areas should be responsible.

226. The activities thus coordinated should be carried out by the medical, nursing and ancillary personnel trained for these specialized works, in cooperation with the practising profession and in pursuance of the policy of correlating preventive and curative medicine.

227. *Specialist Practice.* In respect of specialist facilities there should be a considerable planned extension of diagnostic provision. This should extend to every major country centre which is or becomes the basic centre for any regional service. Such aids should include (a) complete laboratory diagnostic facilities, and (b) radiological diagnostic facilities.

228. With regard to other specialist services we have already expressed three alternatives in paragraph 210 above relating to Remote Areas. The particular provision in any minor or major country centre would be determined in each case by the local circumstances.

229. The natural evolution of medical practice has led to the development of specialist service in the major country centres. Such development has been assisted to a great extent by the opportunities afforded to Australian graduates to obtain higher qualifications through the agency of the Universities and the Royal Australasian Colleges of Surgeons and Physicians. The facilities for such post-graduate medical training should be advanced in every possible way.

(iii) *Metropolitan or City Areas.*

230. Medical practice in metropolitan or city areas comprises all those activities mentioned under paragraph 214, *Country Areas*, in an intensified form and, moreover, includes the university teaching centres, where such exist, and the governmental departments controlling the various aspects of health and medical services financed from government revenue.

231. In metropolitan and city and certain industrialized areas of low income level, there is an obvious inequality of distribution of medical services, and particularly of medical personnel. This is undoubtedly related to economic causes.

232. In such areas patients cannot pay for a full medical service, and doctors must, to obtain an adequate income, work at the expense of their professional efficiency. This is neither satisfactory nor equitable to doctor or to patient.

233. Increasing numbers of persons seek treatment at the out-patient departments of public hospitals, often travelling miles to secure it and wasting many hours of working time in the process and in waiting time. In cities this has of late years become a serious feature of administrative medical disability.

234. The services such patients require could, under a better organized scheme, and should, be secured from medical practitioners available within reasonable distances of the homes of the patients.

235. Moreover, the efficiency of hospitals should not be handicapped by the out-patient problem, and the care of out-patients should be returned to the general medical practitioner, by correction of the economic disability that at present intervenes, to detach such patients from him.

236. Obviously, any such change must be made in a way that suggests no discrimination or inequality of benefits to particular sections of the public and also in such a way as to use the public funds required to correct the situation strictly in accordance with the principles of economic administrative procedure.

237. The British Medical Association has requested that it be charged and entrusted with the care of the health of the public and has agreed that regionalization of activity is the ideal method of decentralizing control in this regard.

238. In respect of institutional provision it has laid it down that it "envisages the evolution of a hospital system on a regional basis. In each region all the hospitals would be grouped around a central or base hospital, either associated with a medical school or possessing outstanding advantages in regard to staff and equipment for undertaking the more specialized methods of treatment. Around such a base hospital or hospitals would be grouped all other hospitals in the area. These, which would include both special and district hospitals, would provide such services as were within their competence, patients being passed on where necessary to the central or base hospital. The services of such a region or area would be developed as an integrated whole, and a patient would be directed to one or other of the institutions according to the condition from which he suffers and not because of individual prejudice or preference."

(Medical schools exist only at Sydney, Melbourne, Brisbane and Adelaide, but similar considerations apply in other metropolitan or city areas.)

239. In such areas the actual process of growth of the city has often provided a regionalization into wards, or local government areas, or actual geographical or industrial subdivisions that lend themselves readily to the proposal for decentralized control of medical care. Such subdivisions usually have their own hospital provision, preventive service centres and local specialist groups.

240. The tendency of the day is to emphasise the trend to specialization and differentiation of institutional provision, pointed out by the British Medical Association.

241. In conformity with it there should be in each such metropolitan or city area a subdivision into proper medical wards or districts, each self-contained for medical and health services other than the most specialized, and, with a central institution or series of institutions (available to all subdivisions), to provide these highly specialized services for the whole area.

242. Within each subdivision the medical and health needs of the community concerned should be the responsibility of the medical profession. The preventive health services should, as in country centres, be aggregated at a community health centre under the direction of the district medical officer of health. The institutional services should be organized about a base or district hospital with such public or private subsidiaries as may be required.

The general practice (including what is now out-patient practice) should return to the general practitioner as his admitted field, and should relieve the undue and inappropriate burden upon hospitals. Such adjustment should be made economically so as to ensure that no injustice is suffered by patient or doctor and that governmental funds are applied with equality and economy.

243. Payment for these services will be discussed later. It might be made by fee for service; by capitation fee; by salary, or by a combination of any or all of these methods. Whatever scheme is adopted, a regional service of administrative supervision will be necessary to prevent abuses. In respect of professional matters, this should be entirely in the hands of the medical personnel concerned acting as a whole; and in respect of administrative and economic matters, should be in the hands of an appropriate body upon which the medical personnel of the area should have adequate representation.

244. It may be added at this stage that, in so far as the public is concerned, the Government in power is already levying a graduated income tax upon all but those unable to pay anything whatever, and of this sum of 30 million pounds annually collected for Social Services, part has been set apart as a prepayment of medical care to the extent to which the Government is prepared to provide medical and health services and benefits from revenue. To that extent the whole population has already purchased an interest in the proposals for the care of its health and welfare and will continue to do so from year to year.

245. Provision for the needs of the public should obviously be made in the most convenient manner. For hospital and institutional services the method is stated in the proposals of the British Medical Association quoted above; for preventive measures a community health centre in each district is advised; for domiciliary and minor medical care the services of individual general medical practitioners within the district, at the choice of the patient, are necessary.

246. These should be provided from the consulting rooms of the practitioner concerned, which may either be at his home, at a central group-practice centre, or partly at one and partly at the other. For convenience it would appear undoubted that group-practice centres located where population density and transport facilities indicate ideal sites, would materially assist the convenience both of the public and the practitioner for general consultative purposes. For domiciliary visiting and emergency work, night work and regulation of hours of work, arrangements might readily be made through a system of group-practice in the case of those medical men willing to join such groups and to profit by the joint clerical, telephonic, administrative and record systems available at the group centres.

247. The British Medical Association has in this connection appropriately said that "greater efficiency and economy would be secured and less expense incurred if groups of practitioners would cooperate to conduct a single centre at which all of them would see their own patients and share equipment and the services of secretarial, domestic and dispensing staff. The value of the practitioner to his patients would gain immeasurably from his close and constant contact with his colleagues."

248. No medical practitioner, however, within the district should be compelled to enter any scheme. We are of the opinion that adherence to any scheme should be purely voluntary. The essential principle should be that the medical and health services of the area are adequately available at need to every resident member of the community concerned.

249. The function of the Government should be to provide that where this is not the case, adequate provision is made to meet the deficiency by appropriate means.

(II) Experimental Group-Practice Centres.

250. In conformity with what has been said about the desirability of group-practice centres, particular attention has been paid to the tentative recommendation of the Joint Committee on Social Security in its sixth interim report as to the establishment of services at "out-patient and consulting

clinics" located in the centres of population in urban areas and country towns, equipped with all modern diagnostic aids and treatment facilities, supervised by a salaried medical liaison officer responsible to the central health administration and controlled generally by the medical personnel of each clinic.

251. It was further recommended by the Joint Committee that under such a system of voluntary participation, general practitioners would retain their private practices and would nominate the number of half-day sessions they would be willing to devote to a general medical service on what would in effect be a part-time salaried basis.

252. Further discussion of this scheme indicated the desirability not only of testing it experimentally, but also of extending the investigation to other schemes, differing in detail but essentially based upon group practice.

253. We therefore recommend that experimental group-practice centres be set up at carefully selected places in Australia where different sets of conditions, different types of practice and different methods of payment for services might be tested fully for practicability—careful records being made of every aspect of each situation, in order that an ideal scheme might ultimately be formulated, sufficiently elastic to be applicable to the varying circumstances and conditions that operate in different parts of Australia.

(III) Availability of Specialist Services.

254. We agree with the British Medical Association in Australia that the increasing complexity of medical science has been accompanied by the development of a considerable number of special methods and techniques, both in diagnosis and treatment, the successful employment of which involves specialised knowledge and experience, and, in many cases, complex and expensive apparatus. The second opinion or consultation, with or without treatment, must be available. It may be sought from the general physician, the general surgeon, the obstetrician and gynecologist, or from a specialist in a more restricted field. Again, the help of a practitioner specialising in a particular method or group of methods of diagnosis or treatment, such as a pathologist, a radiologist, or a practitioner concentrating on physical or on psychological methods, may be desired. These, too, should be available. Such consultant and specialist provision should be available in the home, the consulting room, or the hospital, according to the circumstances. In short, all classes of special knowledge and specialized technique should be available when the circumstances require them for every member of the community.

255. Having regard to geographical conditions and the proposed hospital distribution, the future development and organization of special investigational centres should be in connection with the main metropolitan and base hospitals in the country. Private consultative and specialist practice should continue within and without the hospitals.

256. The payment for specialist services (where payment is made) will vary according to the circumstances and might accordingly be upon a fee-for-service, a sessional, a subsidized, or a salaried basis.

(IV) Flying Doctor Services and Air Ambulance Transport.

257. The aerial transport of patients, which was beginning to play a very important part in the service to persons in remote areas prior to the present war, has assumed infinitely greater importance during it. We are of the opinion that in many instances ambulance transport by air is speedier, more comfortable and less damaging to patients than road transport for distances of 50 miles and upwards.

258. The accommodation as to specialist services and the establishment of regionalized areas based on central towns indicate the related necessity for a considerable development, not only for routine medical service in areas of sparse population at considerable distances, but also for rapid transport of patients to specialized hospitals and facilities.

259. We consider there should be a post-war development of a series of aerobically properly distributed in relation to selected major and minor centres, both city and rural, and providing (a) "flying doctor" services, including specialist services to the most remote and otherwise unstaffed area; and (b) air ambulance services from any area to the centre appropriate for specialized treatment in individual cases.

260. The "flying doctors" appointed to routine service in respect of (a) above, and nursing and ancillary personnel, should be employed under terms and conditions providing adequate salary and living conditions and with a degree of comfort somewhat greater than the provision of the bare amenities of life, and with either short term appointments or regular opportunities for "refresher" and post-graduate study courses.

261. The development of transceiver facilities should proceed equally in all areas thus serviced.

(V) Medical Education and Post-Graduate Study.

262. A deficiency in the education of medical students at present is the fact that their education has been directed almost exclusively to medical and surgical procedures of a curative nature.

263. More and more the aspects of positive health are gaining recognition. More than twenty years ago it was strongly urged by members of the medical profession that those aspects which are included within the term Social Medicine, i.e., preventive medicine, public health technique, hygiene and sanitation, industrial hygiene and similar activities leading to positive health, must be recognized as being not only essential aspects of medical education but must be presented to the student in a practical form in order that he may subsequently apply them in practice as a medical practitioner.

264. It is in our opinion advisable that there should be in each university a Chair of Social Medicine, deliberately directed to this objective and embracing those activities and related activities in the medical and all other faculties. The national importance of this objective suggests that the Commonwealth Government might legitimately endow or sustain such chairs.

265. It has consistently been advocated that the preventive side of medicine should be stressed throughout the whole of the medical course and it is in our opinion advisable that specific attention should be given to this aspect in each year of the medical course in a progressive manner, and that the lectures should be associated with practical work in connection with those outside activities including Commonwealth and State Departments, industrial organisations and related services which make these their function.

266. Moreover, in respect of general training, the curriculum of the medical student is governed to a great degree by the fact that it is bound to set aspects of hospital practice in special teaching hospitals. The student learns in city hospitals the grossly abnormal, but to some extent fails to familiarise himself with the minor ailments and insipient indications of diseases which form a considerable and a very important part of general medical practice.

267. It is recommended that in the last two of his three years' clinical course there should be an improvement upon the present provision of a closer association of the student with the work of out-patients departments and the suggested group-practice centres. This combination of major and minor, or externe and interne medical experience, has manifest advantages.

268. Specific reference is made elsewhere in this report to the desirability of establishing a Chair of Midwifery at each State University, whether a Faculty of Medicine exists at that University or not. We strongly endorse this view as an improved aspect of medical education.

269. At the conclusion of his medical course, and before being permitted to undertake general practice, it is our opinion that there should be a compulsory period of hospital experience for all medical graduates. This period might profitably be not less than twelve months. Subsequent to the satisfactory performance of this period of hospital work medical graduates should be registered for general medical practice.

270. Subsequent to registration, it is desirable in the interests of the patient that medical men should from time to time have opportunities to familiarize themselves with advances in scientific knowledge for application to general practice. It is only necessary in this connection to mention the advantages that would accrue from special provision for medical men of post-graduate training at the times of such discoveries as those of insulin, drugs of the sulphonamide group and, to quote a most recent instance, their application to the correction of venereal diseases, bacillary dysentery, pneumonia, etc.

271. Economic circumstances frequently prevent medical practitioners benefiting in this, though they may earnestly desire so to do. Since the matter is one obviously directed towards the improvement of general practice in the interests of the patient, it is advocated that provision should be made to put such post-graduate facilities within the reach of every medical practitioner both urban and rural, at appropriate intervals.

MEDICAL REGISTRATION.

272. We are agreed that there would be many advantages in a Commonwealth system of medical registration. Such a system would ensure uniformity of qualification and the maintenance of high ethical standards throughout the medical profession in Australia. We believe that this could be best achieved by Commonwealth legislation with such decentralized administration as is necessary. If constitutional difficulties still persist, a uniform legislative code should be agreed upon for adoption in all States and the Commonwealth Territories.

For and on behalf of the Committee.

(Signed) H. C. BARNARD, Chairman,
Joint Committee on Social Security.

H. S. NEWLAND, President,
Federal Council, British Medical
Association in Australia.

Canberra,
1st March, 1944.

The Royal Australasian College of Physicians.

MEETING AT MELBOURNE.

A MEETING of the Royal Australasian College of Physicians will be held at Melbourne on Friday and Saturday, September 22 and 23, 1944. The programme will be as follows:

Friday, September 22, 1944.

10.15 a.m.—Council meeting in the council room of the Royal Australasian College of Surgeons. The admission of new members will take place at this meeting.

2.15 p.m.—Scientific session in the lecture hall of the Royal Australasian College of Surgeons. Symposium on acute pulmonary infections: "Clinical Aspects of Atypical Pneumonia", Wing Commander Ian G. McLean; "Some Observations Concerning the Diagnosis and Treatment of Acute Infections of the Lungs": (a) Diagnosis and Treatment with Sulphonamide Drugs, Lieutenant-Colonel Ian J. Wood, M.B.E.; (b) Results of Treatment with Penicillin, Major J. E. Clarke.

8.15 p.m.—Address by Sir Howard Florey: "Penicillin", in the Wilson Hall of the University of Melbourne. Academic and ordinary dress will be worn.

Saturday, September 23, 1944.

10.15 a.m.—Scientific session in the lecture hall of the Royal Australasian College of Surgeons: "Arterio-Venous Communications", Dr. Clive H. Fitts; "The Treatment of Tuberculous Lung Cavities by Suction Drainage: Monaldi's Method", Dr. Hilary Roche.

2.15 p.m.—Continuation of council meeting in the council room of the Royal Australasian College of Surgeons.

To allow ample time for discussion, a time limit of twenty (20) minutes has been allotted for each paper at both scientific sessions.

National Emergency Measures.

ALLOWANCE OF EXTRA BUTTER TO PATIENTS WITH DISEASES OTHER THAN DIABETES.

THE following statement has been received from the Director-General of Health, Canberra, who received it from the Director of Rationing with a request that it should be brought to the notice of medical practitioners.

Medical practitioners are aware of the fact that diabetes is the only disease which automatically qualifies the patient to receive an extra allowance of butter. This ruling is the result of a decision made by the Food Rationing (Special Diets) Committee, consisting of Dr. Harold Ritchie (Chairman), Dr. A. Holmes à Court, Dr. W. F. Simmons, Dr. S. A. Smith, Professor H. Priestley, Dr. A. J. Metcalfe and Dr. F. W. Clements.

It is recognized, however, that sometimes a practitioner may consider that there are special circumstances which entitle a patient suffering from some other disease to receive extra butter; and, further, the practitioner may occasionally think that a diabetic should receive more than the standard total allowance of fourteen ounces of butter per week. In each of these two special cases, consideration will be given by a medical referee to any application which is lodged with the Deputy Director of Rationing, and is supported by a medical certificate. It is necessary for the medical practitioner, however, to set forth fully the circumstances warranting the issue of these special grants of butter.

It has been pointed out by the Rationing Commission that many of the certificates received merely state that the patient has, for example, gastric ulcer, and do not indicate why the particular patient should receive special consideration.

This notice is intended to remind practitioners that, by attending to the details mentioned above, they will ensure that the patients who are actually entitled to butter are not denied it through lack of essential information on their medical certificates.

Correspondence.

A CASE OF MALARIA ACQUIRED NEAR SYDNEY, NEW SOUTH WALES.

SIR: With reference to the article by Dr. Jean M. Collier concerning a case of malaria acquired near Sydney, New South Wales, published in the journal of August 26, 1944, it will be of interest to your readers to learn that on investigation of this case I discovered that mosquitoes (*Anopheles annulipes*) were breeding in large numbers in the vicinity of the patient's home.

A house-to-house inspection made by the local health officer also revealed that a soldier who had returned from New Guinea where he had contracted malaria had suffered a relapse a short time previous to the occurrence of the second case.

Shortly after this case was reported, my attention was directed to a boy in the Saint George District Hospital suffering from malaria. Investigation again revealed that *Anopheles annulipes* were breeding in natural pools of water near his home in an isolated portion of the municipality of Hurstville. Apparently also a soldier from New Guinea who was taking quinine or "Atebrin" had stayed in the patient's house.

Yours, etc.,

J. GRAHAME DREW,
Metropolitan Medical Officer of
Health.

Department of Public Health,
Sydney.

August 28, 1944.

DERMATITIS DUE TO SULPHONAMIDES.

SIR: I have read with considerable interest your current comment on dermatitis due to sulphonamides in your issue of May 6, 1944, and wish to contribute to this very important question by brief reference to my own observations gained over a large number of dermatological cases.

1. About 12% of the dermatological cases treated by local application of the sulphonamide drugs deliver cutaneous and general sensitivity to these allergens. The result of the patch test is inconclusive in determining sensitivity and the oral administration of sulphonamides for diagnostic purposes is too risky to be recommended.

2. Sensitivity to one of the sulphonamide drugs is as a rule extended to other members of the group.

3. Fortunately there are exceptions to this rule. For instance, a patient of mine reacted to sulphanilamide with a fixed form of *erythema multiforme*-like eruption, but tolerated well other compounds (sulphapyridine and sulphathiazole).

4. The clinical features of sulphonamide dermatitis are frequently significant enough to arouse suspicion concerning the nature of the condition in question.

5. Attention may be drawn to an unusual and tricky form of intolerance. After sensitization has occurred, subsequent application of drugs will provoke, on treated and distant areas, a skin eruption (papular, papulo-vesicular lesions, eczematous patches, weeping dermatitis *et cetera*) identical with those which were originally present before the treatment has been introduced (allergic Koebner phenomenon?).

6. Exfoliative dermatitis due to the prolonged use of sulphanilamide drugs has been seen.

7. It is my opinion that there is not one dermatological condition in which the application of sulphanilamide drugs is imperative, and there are a host of harmless or less harmful remedies which satisfactorily fill all requirements.

8. I believe that the topical application of sulphonamides in treatment of skin diseases should be discontinued or at least considerably restrained.

Yours, etc.,

July 15, 1944.

F. GOLDSCHLAG,
Captain, Australian Army Medical
Corps.

SOME OBSERVATIONS ON TUBERCULOSIS CONTROL.

SIR: I wish to support Dr. Hensell in his remarks in approval of Dr. Hilary Roche's article in the issue of July 15. Most medical men who have been abroad will agree with the opinions expressed that tuberculosis control in Australia is sadly lacking in comparison with that of many other countries. When Dr. M. J. Holmes made his survey of conditions existing in Australia, it was felt that at last some forward step would be made. But that report was published in 1929, and in the meantime very little has been accomplished. There have been many meetings, conferences and discussions, but little has emanated from all these except pious resolutions.

In the past thirty years over 100,000 Australian citizens, mostly in the early and middle adult age groups, have died from tuberculosis, a preventable disease. This is not a record to be proud of. There is fairly general agreement as to the measures needed for more effective tuberculosis control in Australia, but the trouble is to get them implemented. It seems that there is need for an alert, well-informed body to keep reminding health authorities, both Federal and State, of their responsibilities in this matter. A movement is being considered for the formation of an Australian National Tuberculosis Association. Such a body might perform a very useful function in stimulating professional, public and political interest in a matter of serious concern to the community.

Yours, etc.,

163, North Terrace,
Adelaide,
August 23, 1944.

D. R. W. COWAN.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 168, of August 24, 1944.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH. Royal Australian Naval Reserve.

Appointment.—Bruce Lambton Menzies is appointed Surgeon Lieutenant, dated 4th July, 1944.

ROYAL AUSTRALIAN AIR FORCE. Citizen Air Force: Medical Branch.

The probationary appointments of the following Flight Lieutenants are confirmed with effect from the dates indicated: C. B. Colvin (267224), 1st May, 1944, A. G. Gibson (256822), J. K. Z. Marks (7392), A. G. Nicholson (257529), 14th May, 1944.

The following Temporary Squadron Leaders are granted the acting rank of Wing Commander whilst occupying a Wing Commander post with effect from 1st July, 1944: R. G. Plummer (281253), S. B. Forgan (281237).

Temporary Flight Lieutenant F. J. McCoy (253474) is granted the acting rank of Squadron Leader whilst occupying a Squadron Leader post with effect from 1st July, 1944.

Dr. Robert Andrew Duval, M.B., B.S. (267693), is appointed to a commission on probation with the rank of Flight Lieutenant with effect from 9th April, 1944.

The following Flight Lieutenants are transferred from the Reserve to the Active List with effect from 11th June, 1944: G. F. Blaxland (268523), H. L. Benn (257556), G. D. Charters (257499), G. Whyte (267598), M. I. Symonds (257508), P. W. Read (257475), R. W. E. Manser (257479), C. F. McCann (257631), G. R. Jones (257478), H. R. Hawkins (1777).

Reserve: Medical Branch.

Dr. Cyril Ignatius Wilkinson, M.B., B.S. (277479), is appointed to a commission with the rank of Flight Lieutenant with effect from 1st June, 1944.—(Ex. Min. No. 218—Approved 22nd August, 1944.)

Squadron Leader J. H. Bilton (261266) is transferred from the Active List with effect from 8th July, 1944.

The following medical practitioners are appointed to commissions on probation with the rank of Flight Lieutenant with effect from 5th June, 1944: E. D. Cocks (297467), C. J. Craig (257671), R. K. Doig (257656), J. H. A. Floyd (257657), J. P. L. Griffiths (257658), A. M. Hall (257660), J. V. Hurley (257659), W. F. A. Harris (297466), J. E. Joseph (257661), L. Kowadlo (257662), H. F. Kuhlmann (287457), F. Leventhal (267718), L. E. McDonnell (267717), F. A. R. Missel (257663), G. C. Morrison (257664), J. J. Nattress (257665), G. A. W. Pryor (257666), H. T. Ramsay (257667), T. B. Ready (257669), G. P. Ryan (257668), V. T. Stephen (257670), A. H. Toyne (267719), J. F. Williams (257653), L. Cebon (257654), H. J. Cahill (257655), S. Brand (257652), A. W. Burnell (287456).—(Ex. Min. No. 224—Approved 22nd August, 1944.)

Post-Graduate Work.

GENERAL REVISION COURSE AT SYDNEY.

THE New South Wales Post-Graduate Committee in Medicine announces that a general revision course will be held in metropolitan hospitals from Monday, October 9, to Friday, October 20, 1944, inclusive.

The programme for the course will be published shortly.

Applications to attend the course should be made as soon as possible to the Secretary, New South Wales Post-Graduate Committee in Medicine, 145, Macquarie Street, Sydney, B 4606. Application should state home address and Sydney address, and should be accompanied by a cheque for the amount of the fee, made payable to the committee.

The fees for the course will be as follows: full course, £10 10s.; mornings and afternoons only, £5 5s.; and one week only, £5 5s. For medical officers of the defence forces, members of the public service and hospital resident medical officers, the fees will be half those shown.

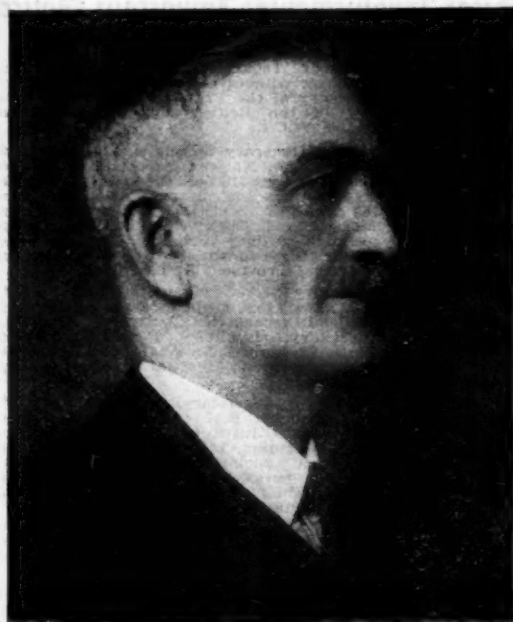
Obituary.

THOMAS PATRICK CONNOLLY.

A COLLEAGUE who wishes to remain anonymous has forwarded the following appreciation of the late Dr. Thomas Patrick Connolly.

On July 22, 1944, at Toowoomba, Queensland, there passed away Dr. Thomas Patrick Connolly after a brief illness of three days. He was born at Orange, New South Wales, in 1878, educated at Saint Stanislaus' College, Bathurst, and passed from there to Saint John's College within the University of Sydney. He had a very creditable course, securing Professor Haswell's prize in zoology and botany

in his first year and in the subsequent years being always well up amongst the place getters, finally graduating with honours in 1904. He was resident at Prince Alfred Hospital for two years and was for a portion of that time resident radiographer. He came to Toowoomba in 1907 to act as *locum tenens* for Dr. Aeneas McDonnell, who had gone abroad, and on the latter's return a partnership was started which lasted for twenty-five years and was terminated only by the retirement of the senior partner due to ill health. During this period of cooperation they worked one of the largest practices in Queensland. His work, however, did not lessen with the cessation of the partnership, but kept on at a high pitch with no relaxation of effort except for the short respite of an occasional brief holiday, and these war years added their burdens. Without doubt such a heavy tax on his strength undermined his health and left him an easy prey to the attack of pneumonia which caused his death. He had long established for himself a high and deserved prestige in the profession within this State and placed himself far beyond any monetary care, and if he had so chosen could in his latter years have lived an easier and less strenuous life, but he refused no call on his skill and service and gave it without thought of his own welfare or any recompense.



He was a foundation Fellow of the Royal Australasian College of Surgeons, an honour which his skill and experience in surgical practice entitled him to. At the time of his death he was senior surgeon to the Toowoomba General Hospital and one of the senior surgeons at Saint Vincent's Hospital of the same city. His interests outside the work of his profession were many. He was possessed of a fine civic spirit and took an active part when opportunity allowed in many civic and sporting institutions. He filled at times the office of President of the Toowoomba Rotary Club, the Downs Club, Golf Club and the Rugby Union. Many of his spare leisure hours he enjoyed at his club, for he was a keen club man. Good reading was a real happiness to him and he possessed an extensive and valuable library of varied literature. He had a keen appreciation of art and a hobby for collecting antique furniture, and over many years had got together a choice collection of original paintings and antiques. He was the best type of medical practitioner. He was capable. He was true to the high traditions of our calling. He had a nature without guile, gentle and kindly. His charity was great to the sick and needy poor, but unostentatiously given. Of what his right hand had done his left knew nothing.

The high appraisement of his life as doctor and citizen was revealed by the large congregation that filled Saint Patrick's Cathedral at the last obsequies and later gathered at the graveside to pay a tribute of reverence to a good man.

JAMES FERDINAND RUDALL.

Dr. ARTHUR LAWRENCE, of Melbourne, has forwarded the following appreciation of the late Dr. James Ferdinand Rudall.

Dr. Rudall was, to those who knew him well, a delightful personality. His gentle humour, fine discrimination and excellent judgement made him a valued friend.

One of his favourite stories was of the Scotchman, who went to the chemist and asked for 6d. worth of arsenic. "What do you want it for?" said the chemist. "I would na' like to tell ye", said the Scotchman. "But you must; it is poison", says the chemist. "Weel", said the Scotchman, "I want it for 4d."

He was connected with the Eye and Ear Hospital, Melbourne, for fifty years as ophthalmic surgeon and consulting surgeon.

He had a wonderful record in operations for cataract; his hands were small and delicate, "his touch like thistle down", as Dr. Archie Anderson once said. As far as I know, he never lost an eye after operating for cataract, and when one thinks of the pre-culture days and the absence of "Novocain" injection, his judgement must have been good and his control of the patient uncanny.

He learned his work from Nettleship at Saint Thomas's Hospital, London, where he was resident surgeon.

During this time in London he played in a small orchestra conducted by the famous baritone Santley. He was an accomplished musician, having played the cor anglais in J. C. Williamson's opera as an amateur during the days of Melba.

He will be greatly missed by all who counted him a friend.

FREDERICK GORDON ROBERTSON.

THE following appreciation of the late Dr. Frederick Gordon Robertson has been received from a correspondent who wishes to remain anonymous.

Dr. Frederick Gordon Robertson, of Bellevue Hill, whose death occurred on August 12, 1944, was the son of a doctor and one of eight brothers, seven of whom were medical men. He qualified out of Glasgow in 1906, and after post-graduate study at the Rotunda Hospital in Dublin he practised in London. He came to this country about thirty years ago and settled at Collarenebri. During the last war he served in Australia with the Australian Army Medical Corps Reserve and afterwards practised at Bellevue Hill.

He was a large man, with a very kindly expression, a genial presence, a mild manner, a dry humour, and Scotland in his voice and in his tweeds. He possessed an unusually deep understanding of humankind, so that his practice was large. His hobby was engineering, and he loved his workshop and lathe even more than his golf and his bowls. Of late years his health became bad; he exerted himself with difficulty and his eyesight was blurred; but it was a remarkable tribute to his personal qualities that many of his old patients, though it was explained to them that he had relinquished his professional work and could hardly see them, refused to go elsewhere and begged that he would attend them as best he could since he understood them so well. He leaves a widow, a daughter and a son. His son, Captain Edwin John (Sandy) Robertson, A.A.M.C., became a prisoner of war after the fall of Rabaul.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Cameron, Barry Wallace Graham, M.B., B.S., 1944 (Univ. Sydney), Mater Misericordiae Hospital, Crow's Nest.
Dickinson, Dorothy Claire, M.B., B.S., 1944 (Univ. Sydney), Hornsby and District Hospital, Hornsby.
Hing, Norman Sidney, M.B., B.S., 1942 (Univ. Sydney), 109, Penshurst Street, Willoughby.

THE undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Wilton, Alexander Cickburn, M.B., B.S., 1911 (Univ. Adelaide), Adelaide.
Skipper, John Starke, M.B., B.S., 1944 (Univ. Adelaide), Adelaide Children's Hospital.
Fairley, James, M.B., B.S., 1941 (Univ. Adelaide), A.I.F.

The undermentioned have been elected as members of the South Australian Branch of the British Medical Association:

- Cooling, Max Sylvester, M.B., B.S., 1944 (Univ. Adelaide), Royal Adelaide Hospital.
 Noak, Beatrice May, M.B., B.S., 1941 (Univ. Adelaide), Marceba Babies' Hospital.
 Sims, Eric Baldwin, M.B., B.S., 1940 (Univ. Adelaide), Adelaide Children's Hospital.
 Leyland, Geoffrey Agar, M.B., B.S., 1944 (Univ. Adelaide), Royal Adelaide Hospital.

Books Received.

"Surgery of Modern Warfare", edited by Hamilton Bailey, F.R.C.S., Sub-Editor for Medicine: C. Allan Birch, M.D., M.R.C.P., D.C.H., D.P.H., M.M.S.A.; Third Edition (complete in six parts), Part IV, compiled by seventy-seven contributors; 1944. Edinburgh: E. and S. Livingstone. 8½" x 5½", pp. 507-716, with many illustrations, some in colour. Price: 15s. net.

"Surgery of Modern Warfare", edited by Hamilton Bailey, F.R.C.S., Sub-Editor for Medicine: C. Allan Birch, M.D., M.R.C.P., D.C.H., D.P.H., M.M.S.A.; Third Edition (complete in six parts), Part V, compiled by seventy-seven contributors; 1944. Edinburgh: E. and S. Livingstone. 8½" x 5½", pp. 717-896, with many illustrations, some in colour. Price: 15s. net.

"Textbook of Medical Treatment", by various authors; edited by D. M. Dunlop, B.A. (Oxon.), M.D., F.R.C.P. (Edinburgh), M.R.C.P. (London); L. S. P. Davidson, B.A. (Cambridge), M.D., F.R.C.P. (Edinburgh), F.R.C.P. (London); J. W. McNee, D.S.O., D.Sc., M.D. (Glasgow), F.R.C.P. (Edinburgh), F.R.C.P. (London); with a foreword by the late Professor A. J. Clark, B.A. (Cambridge), M.D., D.P.H., F.R.C.P. (London), F.R.S.; Third Edition; 1944. Edinburgh: E. and S. Livingstone. 8½" x 5½", pp. 1239. Price: 30s. net.

"Combined Textbook of Obstetrics and Gynaecology: For Students and Medical Practitioners", revised by J. M. Munro Kerr, LL.D., M.D., F.R.F.P. and S. (Glasgow), F.R.C.O.G., R. W. Johnstone, C.B.E., M.A., M.D., M.R.C.P., F.R.C.S. (Edinburgh), F.R.C.O.G., James Hendry, M.B.E., M.A., B.Sc., M.B., F.R.F.P. and S. (Glasgow), F.R.C.O.G., Dugald Baird, B.Sc., M.D. (Glasgow), D.P.H. (Edinburgh), F.R.C.O.G., James Young, D.S.O., M.D., F.R.C.S. (Edinburgh), F.R.C.O.G., Donald McIntyre, M.B.E., M.D. (Glasgow), F.R.F.P. and S. (Glasgow), F.R.C.S. (Edinburgh), F.R.C.O.G., F.R.S.E., E. Chalmers Fahmy, M.B., F.R.C.P., F.R.C.S. (Edinburgh), F.R.C.O.G., with additional contributions by Charles McNeill, M.A., M.D., F.R.C.P. (Edinburgh), and G. Jackson Wilson, M.B. (Glasgow), D.P.H. (Cambridge); Fourth Edition; 1944. Edinburgh: E. and S. Livingstone. 9½" x 6", pp. 1238, with many illustrations, some of which are in colour. Price: 42s. net.

"Clinical Practice in Infectious Diseases: For Students, Practitioners and Medical Officers", by E. H. R. Harries, M.D. (London), F.R.C.P., D.P.H., and M. Mitman, M.D. (London), M.R.C.P., D.P.H., D.M.R.E., with a foreword by W. Allen Daley, M.D. (London), F.R.C.P., D.P.H.; Second Edition; 1944. Edinburgh: E. and S. Livingstone. 8½" x 5½", pp. 582. Price: 22s. 6d. net.

"Diseases of the Chest, Described for Students and Practitioners" by Robert Coope, M.D., B.Sc., F.R.C.P., with a foreword by Lord Horder; 1944. Edinburgh: E. and S. Livingstone. 8½" x 5½", with illustrations, some in colour. Price: 25s. net.

"Diseases of the Nose, Throat and Ear: A Handbook for Students and Practitioners", by I. Simson Hall, M.B., Ch.B., F.R.C.P.E., F.R.C.S.E.; Third Edition; 1944. Edinburgh: E. and S. Livingstone. 7" x 5", pp. 470, with illustrations, some in colour. Price: 15s. net.

"Handbook of Diagnosis and Treatment of Venereal Diseases", by A. E. W. McLachlan, M.B., Ch.B. (Edinburgh), D.P.H., F.R.S.Ed.; 1944. Edinburgh: E. and S. Livingstone. 7½" x 5", with many illustrations, some in colour. Price: 15s. net.

"The Symptomatic Diagnosis and Treatment of Gynecological Disorders", by Margaret Moore White, M.D. (London), F.R.C.S. (England), M.R.C.O.G., with a Foreword by F. J. Browne, M.D. (Aberdeen), D.Sc., F.R.C.S. (Edinburgh), F.R.C.O.G.; 1944. London: H. K. Lewis and Company, Limited. 8½" x 5½", pp. 239, with many illustrations. Price: 16s. net.

"Aids to Materia Medica", by George H. Newns, M.D. (London), M.R.C.P. (London); Third Edition; 1944. London: Baillière, Tindall and Cox. 6½" x 4", pp. 217. Price: 5s.

"Coast to Coast: Australian Stories, 1943", selected by Frank Dalby Davison; 1944. Sydney: Angus and Robertson, Limited. 7½" x 4½", pp. 253. Price: 7s. 6d.

"By Tropic Sea and Jungle: Adventures in North Queensland", by Jean Devanny; 1944. Sydney: Angus and Robertson, Limited. 8½" x 5½", pp. 238. Price: 7s. 6d.

"The Practitioner Handbooks: 'Industrial Medicine'", edited by Sir Humphry Rolleston, Bt., G.C.V.O., K.C.B., M.D., F.R.C.P., and Alan A. Moncrieff, M.D., F.R.C.P., with an Introduction by Air Vice-Marshal Sir David Munro, K.C.B., C.I.E., M.B., Ch.B., F.R.C.S. (Edinburgh), LL.D.; 1944. London: Eyre and Spottiswoode (Publishers) Limited. 8½" x 5½", pp. 202, with five illustrations. Price: 16s. net.

Diary for the Month.

- SEPT. 12.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
 SEPT. 12.—Tasmanian Branch, B.M.A.: Branch Meeting.
 SEPT. 15.—Victorian Branch, B.M.A.: Ethics Subcommittee.
 SEPT. 18.—Victorian Branch, B.M.A.: Hospital Subcommittee.
 SEPT. 18.—Victorian Branch, B.M.A.: Finance Subcommittee.
 SEPT. 19.—New South Wales Branch, B.M.A.: Medical Politics Committee.
 SEPT. 19.—Victorian Branch, B.M.A.: Organization Subcommittee.
 SEPT. 20.—Western Australian Branch, B.M.A.: Branch Meeting.
 SEPT. 21.—South Australian Branch, B.M.A.: Council Meeting.
 SEPT. 21.—Victorian Branch, B.M.A.: Executive Meeting.
 SEPT. 21.—New South Wales Branch, B.M.A.: Clinical Meeting.
 SEPT. 22.—Queensland Branch, B.M.A.: Council Meeting.
 SEPT. 25.—Meeting of the Federal Council, B.M.A., Melbourne.
 SEPT. 26.—New South Wales Branch, B.M.A.: Ethics Committee.
 SEPT. 27.—Victorian Branch, B.M.A.: Council Meeting.
 SEPT. 28.—South Australian Branch, B.M.A.: Scientific Meeting.
 SEPT. 28.—New South Wales Branch, B.M.A.: Branch Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phoenix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such a notification is received within one month.

SUBSCRIPTION RATES—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and book-sellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad per annum payable in advance.